

State of Alabama Ambient Air Monitoring 2017 Consolidated Network Review



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Definitions and Acronyms

AAQM	Ambient Air Quality Monitoring
AAQMP	Ambient Air Quality Monitoring Plan
ADEM	Alabama Department of Environmental Management
ARM	Approved Regional Method
AQS	Air Quality System
avg	average
Bham	Birmingham
CBSA	Core Based Statistical Area
CFR	<i>Code of Federal Regulations</i>
CO	Carbon Monoxide
CSA	Combined Statistical Area
CSN	Chemical Speciation Network
EPA	Environmental Protection Agency
FEM	Federal Equivalent Method
FRM	Federal Reference Method
HDNREM	Huntsville Division of Natural Resources and Environmental Management
hr	hour
hi-vol	high-volume PM10 sampler
JCDH	Jefferson County Department of Health
Low-vol	low-volume particulate sampler
m ³	cubic meter
min	minute
ml	milliliter
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NCore	National Core multipollutant monitoring stations
O ₃	ozone
PAMS	Photochemical Assessment Monitoring Stations
Pb	lead
PM	particulate matter
PM _{2.5}	particulate matter ≤2.5 micrometers diameter
PM ₁₀	particulate matter ≤10 micrometer diameter
PM _{10-2.5}	particulate matter ≤10 microns but > 2.5 microns
PSD	Prevention of Significant Deterioration
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
SLAMS	State or Local Air Monitoring Station
SO ₂	Sulfur Dioxide
SPM	Special Purpose Monitor
STN (PM _{2.5})	Speciation Trends Network
TEOM	Tapered Element Oscillating Microbalance (Rupprecht and Patashnick Co.)
tpy	tons per year
TSP	Total Suspended Particulate
URG	URG-3000N PM _{2.5} Speciation monitoring carbon-specific sampler
USEPA	United States Environmental Protection Agency
° C	degree Celsius
µg/m ³	micrograms (of pollutant) per cubic meter (of air sampled)
≥	greater than or equal to
>	greater than
≤	less than or equal to
<	less than

Introduction

In October 2006, the United States Environmental Protection Agency (EPA) issued final Federal Regulations (40 CFR Part 58) concerning state and local agency ambient air monitoring networks. These regulations require states to submit an annual monitoring network review to EPA. This document provides the framework for establishment and maintenance of Alabama's air quality surveillance system, lists changes that occurred during 2016, and changes proposed to take place to the current ambient air monitoring network during 2017/2018.

Public Review and Comment

The annual monitoring network review must be made available for public inspection for thirty (30) days prior to submission to EPA. For 2017, this document was placed on ADEM's website on 05/23/2017 to begin a 30-day public review period. This document can be accessed at the following link:

<http://www.adem.state.al.us/newsEvents/publicNotices.cnt>

Or by contacting:

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Overview of Alabama's Air Monitoring Network

Ambient air monitors in the state of Alabama are operated for a variety of monitoring objectives. These objectives include determining whether areas of the state meet the National Ambient Air Quality Standards (NAAQS), to provide public information such as participation in EPA's AirNow program, Air Quality Index (AQI) reporting for larger Metropolitan Statistical Areas (MSAs), for use in Air Quality models and to provide data to Air Quality Researchers. Alabama monitors the six (6) criteria pollutants which have NAAQS identified for them: Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), particulate matter (PM₁₀, PM_{2.5}, and PM_{10-2.5}), and Sulfur Dioxide (SO₂). There are other non-criteria pollutants, such as PM_{2.5} speciated compounds, that are also monitored for special purposes. In addition, meteorological data is also collected to support the monitoring and aid in analysis of the ambient air monitoring data.

In Alabama, the air quality surveillance system is operated by the state environmental agency, the Alabama Department of Environmental Management (ADEM), and two local agencies, the Jefferson County Department of Health (JCDH), and the Huntsville Department of Natural Resources and Environmental Management (HDNREM). Each agency has performed the required annual review of their portion of the current ambient air quality network and developed a proposed network plan to be implemented during 2017. This document is a compilation of reports from each agency. An overview of the 2017 Alabama Monitoring Network can be seen in **Table 1**.

Currently, the Air Quality Index (AQI) is reported for Huntsville, Birmingham, Mobile, Montgomery and Phenix City on the Internet at the sites listed below.

ADEM	http://www.adem.state.al.us/programs/air/airquality/ozone/historical.cnt
JCDH	http://www.jcdh.org/programs/air-radiation-protection-division/air-quality-forecast/
HDNREM	https://www.huntsvilleal.gov/environment/air-quality/air-pollution-control-program/air-quality-daily-index-reports/

Summary of findings of the network review

ADEM

Summary of changes in ADEM in 2016/2017

- Wetumpka, ADEM (AQS ID 01-051-1001) ozone monitoring site had to be moved due to loss of access to the site. In consultation with EPA, the site was moved to 206 Queen Ann Road, Wetumpka, Alabama and assigned AQS ID 01-051-1002. Monitoring began March 17, 2017.
- Phenix City-Downtown, ADEM (AQS ID 01-113-0001) particulate matter monitoring site, located behind St. Patrick's Church, had to be moved to 1319 9th Avenue in January 2016 due to loss of access to the site. The lease for the 1319 9th Avenue location was not renewed and operations ceased at the end of September 2016. In consultation with EPA, the particulate matter monitoring site has been relocated to South Girard School and assigned AQS ID 01-113-0003. Monitoring began January 18, 2017.
- Lhoist (AQS ID 01-117-9001) SO₂ DRR monitoring site was added to Alabama's Air Network. Monitoring began January 1, 2017.

Summary of proposed changes for ADEM in 2017/2018

- The Phenix City-Ladonia ozone site (AQS ID 01-113-0002) will be shut down at the end of the 2017 Ozone season.
- In 2018, all ambient air monitoring activities in the Phenix City area will be consolidated to the South Girard School (AQS ID 01-113-0003) monitoring site. The Phenix City-South Girard School site is expected to be completed during the summer of 2017 and will concurrently monitor ozone until the end of the season. The South Girard School (AQS ID 01-113-0003) ozone will replace the Phenix City-Ladonia ozone site (AQS ID 01-113-0002) beginning in March 2018.
- ADEM proposes to close the PM_{2.5} monitor at the Childersburg site (AQS ID 01-121-0002) due to its low design value and since it is not in an MSA. This site is not required by 40 CFR 58, Appendix D.
- ADEM plans to begin monitoring SO₂ at the Ward site in Sumter County (AQS ID 01-119-0003) as a background site. The monitor will be designated as a Special Purpose Monitor (SPM).

HDRNEM

No changes were made in 2016 and no changes are planned for the Huntsville Air Monitoring Network.

JCDH

Summary of changes for JCDH in 2016/2017

- Replacement of shelter at Shuttlesworth
- Addition of PM_{2.5} continuous monitor at Shuttlesworth
- Discontinued monitoring for Low Vol PM₁₀ at Tarrant, Fairfield, Sloss Shuttlesworth and McAdory.

- Discontinuation of Pb monitoring at the North Birmingham NCore site
- Replacement of shelter at NCore site
- Special Purpose Monitor for SO₂ at Shuttlesworth

Summary of proposed changes for JCDH in 2017/2018

- Discontinuation of Low Vol PM₁₀ at the Wyalm site, both the primary and collocated monitors
- Discontinuation of Ozone sampling at the Hoover site
- Discontinuation of non FEM continuous PM_{2.5} sampling at the Hoover site
- Replacing the Corner site shelter with the shelter currently at Hoover

Table 1 - 2017 Alabama Monitoring Network

Site Common Name	AQS ID	Ozone	PM2.5	PM 2.5 collocated	PM2.5 Spec.	PM 2.5 IMPROVE	5014i (Cont. PM2.5)	BAM (Cont. PM2.5)	TEOM (Cont. PM2.5)	PM 10 LoVol	PM10 LoVol Collocated	PM 10 IMPROVE	PM10 Hi-Vol	PM10 Hi-Vol collocated	PM 10 Continuous	Lead	Lead Collocated	SO2	NO2	NOy	CO	Radnet
JCDH Sites																						
North Birmingham (NCore)	01-073-0023	x	x	x	x	x	x			x	x	x			x			x	x	x	x	x
Fairfield	01-073-1003	x																x			x	
McAdory School	01-073-1005	x	x	x					x													
Leeds Elem. School	01-073-1010	x	x	x					x	x												
Wylam	01-073-2003		x	x	x				x	x	x				x							
Hoover	01-073-2006	x							x													
Corner High School	01-073-5003	x							x													
Tarrant Elem. School	01-073-6002	x													x							
Sloss Shuttlesworth	01-073-6004								x						x			x				
Arkadelphia (Near Road)	01-073-2059		x																x		x	
ADEM Sites																						
Fairhope	01-003-0010	x	x																			
Ashland	01-027-0001		x																			
Muscle Shoals	01-033-1002	x	x																			
Crossville	01-049-1003		x																			
DBT - Closed 06/27/2016	01-051-0001	c																				
Wetumpka	01-051-0002	x																				
Gadsden - CC	01-055-0010		x					x														
Southside	01-055-0011	x																				
Dothan -CC	01-069-0003		x																			
Dothan	01-069-0004	x																				
Mobile - Chickasaw	01-097-0003	x	x					x										x				x
Mobile - Bay Road	01-097-2005	x																				
Montgomery - MOMS	01-101-1002	x	x	x				x					x	x								
Decatur	01-103-0011	x	x					x														
Troy	01-109-0003															x	x					
Phenix City - Downtown - closed 09/22/2016	01-113-0001		c	c	c				c													
Phenix City - Ladonia	01-113-0002	x																				
Phenix City - South Girard School	01-113-0003		x	x	x			x														
Helena	01-117-0004	x																				
Lhoist	01-117-9001																	x				
Ward, Sumter Co.	01-119-0003	x						x														
Childersburg	01-121-0002		x																			
Tuscaloosa - VA Hospital	01-125-0004		x					x														
Duncanville, Tuscaloosa	01-125-0010	x																				
HDRREM Sites																						
Fire station #10 (Pulaski Pike)	01-089-0002												x									
Madison Street - Garage	01-089-0003												x									
Fire station #7 (S.Memor.Pwy)	01-089-0004												x									
Huntsville Old Airport	01-089-0014	x	x	x	x			x					x	x								
Huntsville Capshaw Rd	01-089-0022	x																				

c = monitor closed

Network Plan Description

As per 40 CFR Part 58.10, an annual monitoring network plan which provides for the establishment and maintenance of an air quality surveillance system consisting of the air quality monitors in the state, is required to be submitted by all states to EPA.

Specifically §58.10 (a) requires for each existing and proposed monitoring site:

1. A statement of purpose for each monitor.
2. Evidence that siting and operation of each monitor meets the requirements of Appendices A, C, D, and E of 40 CFR Part 58, where applicable.
3. Proposals for any State and Local Air Monitoring Station (SLAMS) network modifications. §58.10 (b) requires the plan contain the following information for each existing and proposed site:
 - a. The Air Quality System (AQS) site identification number.
 - b. The location, including street address and geographical coordinates.
 - c. The sampling and analysis method(s) for each measured parameter.
 - d. The operating schedules for each monitor.
 - e. Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.
 - f. The monitoring objective and spatial scale of representativeness for each monitor.
 - g. The identification of any sites that are suitable and sites that are not suitable for comparison against the annual PM_{2.5} NAAQS as described in §58.30.
 - h. The Metropolitan Statistical Area (MSA), Core Based Statistical Area (CBSA), Combined Statistical Area (CSA) or other area represented by the monitor.
 - i. The designation of any Pb monitors as either source-oriented or non-source-oriented according to Appendix D to 40 CFR part 58.
 - j. Any source-oriented monitors for which a waiver has been requested or granted by the U.S. EPA Regional Administrator as allowed for under paragraph 4.5(a)(ii) of Appendix D to 40 CFR part 58.
 - k. Any source-oriented or non-source-oriented site for which a waiver has been requested or granted by the U.S. EPA Regional Administrator for the use of Pb-PM₁₀ monitoring in lieu of Pb-TSP monitoring as allowed for under paragraph 2.10 of Appendix C to 40 CFR part 58.
 - l. The identification of required NO₂ monitors as near-road, area-wide, or vulnerable and susceptible population monitors in accordance with Appendix D, section 4.3 of this part.
 - m. The identification of any PM_{2.5} FEMs and/or ARMs used in the monitoring agency's network where the data are not of sufficient quality such that data are not to be compared to the NAAQS. For required SLAMS where the agency identifies that the PM_{2.5} Class III FEM or ARM does not produce data of sufficient quality for comparison to the NAAQS, the monitoring agency must ensure that an operating FRM or filter-based FEM meeting the sample frequency requirements described in § 58.12 or other Class III PM_{2.5} FEM or ARM with data of sufficient quality is operating and reporting data to meet the network design criteria described in appendix D to this part.

Monitoring Requirements

Appendix A of 40 CFR Part 58 outlines the Quality Assurance Requirements for SLAMS, SPMs, and PSD Air Monitoring. It details calibration and auditing procedures used to collect valid air quality data, the minimum number of collocated monitoring sites, calculations used for data quality assessments, and reporting requirements. All sites in Alabama operate following the requirements set forth Appendix A.

Appendix C of 40 CFR Part 58 specifies the criteria pollutant monitoring methods which must be used in SLAMS and NCore stations. All criteria pollutant monitoring in Alabama follow the methods specified in Appendix C.

Appendix D of 40 CFR Part 58 specifies network design criteria for ambient air quality monitoring. The overall design criteria, the minimum number of sites for each parameter, the type of sites, the spatial scale of the sites, and the monitoring objectives of the sites are detailed. In designing the air monitoring network for Alabama, the requirements of Appendix D were followed. The specifics for each pollutant network are in their individual chapters.

Appendix E of 40 CFR Part 58 specifies the placement of the monitoring probe, its spacing from obstructions and probe material. All monitors operated in Alabama were evaluated against Appendix E criteria.

Population and CBSA

Alabama has a 2016 population estimate of 4,863,300 of which 3,967,381 is located in the 13 MSAs listed in Table 2.

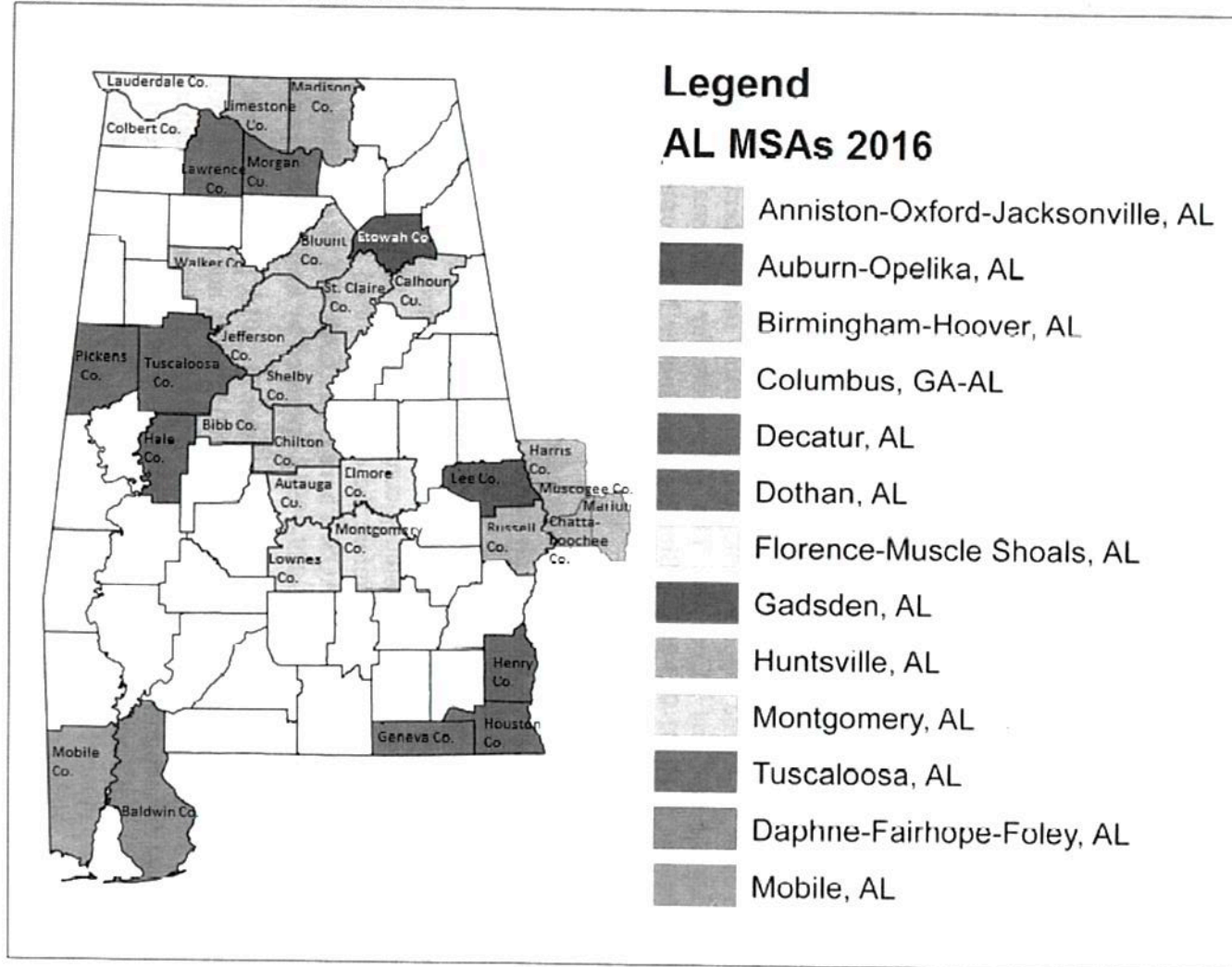
Minimum monitoring requirements vary for each pollutant and can be based on a combination of factors such as population, the level of monitored pollutants, and Core Based Statistical Area boundaries as defined in the latest US Census information. The term "Core Based Statistical Area" (CBSA) is a collective term for both Metropolitan Statistical Areas (MSA) and Micropolitan Statistical Areas (μSA).

Table 2 lists the CBSAs in Alabama along with county names included in that area, and the 2016 estimated population. The Metropolitan Statistical Areas followed by the Micropolitan Statistical Areas are listed from highest to lowest population.

Table 2 Alabama CBSAs

Core Based Statistical Area (CBSA) Title	Counties	2016 population est.	Metropolitan/Micropolitan Statistical Area
Birmingham-Hoover, AL	Bibb, Blount, Chilton, Jefferson, Shelby, St. Clair, and Walker	1,147,417	Metropolitan Statistical Area
Huntsville, AL	Limestone and Madison	449,720	Metropolitan Statistical Area
Mobile, AL	Mobile County	414,836	Metropolitan Statistical Area
Montgomery, AL	Autauga, Elmore, Lowndes, and Montgomery	373,922	Metropolitan Statistical Area
Columbus, GA-AL	Russell County, AL and Chattahoochee County, GA, Harris County, GA, Marion County, GA, Muscogee County, GA	308,755	Metropolitan Statistical Area
Tuscaloosa, AL	Hale, Pickens and Tuscaloosa	241,378	Metropolitan Statistical Area
Daphne-Fairhope-Foley, AL	Baldwin	208,563	Metropolitan Statistical Area
Auburn-Opelika, AL	Lee	158,991	Metropolitan Statistical Area
Decatur, AL	Lawrence and Morgan	152,256	Metropolitan Statistical Area
Dothan, AL	Geneva, Henry and Houston	147,834	Metropolitan Statistical Area
Florence-Muscle Shoals, AL	Colbert and Lauderdale	146,534	Metropolitan Statistical Area
Anniston-Oxford-Jacksonville, AL	Calhoun	114,611	Metropolitan Statistical Area
Gadsden, AL	Etowah	102,564	Metropolitan Statistical Area
Albertville, AL	Marshall	95,157	Micropolitan Statistical Area
Talladega-Sylacauga, AL	Coosa and Talladega	90,684	Micropolitan Statistical Area
Cullman, AL	Cullman	82,471	Micropolitan Statistical Area
Scottsboro, AL	Jackson	52,138	Micropolitan Statistical Area
Enterprise, AL	Coffee	51,226	Micropolitan Statistical Area
Ozark, AL	Dale	49,226	Micropolitan Statistical Area
Selma, AL	Dallas	40,008	Micropolitan Statistical Area
Valley, AL	Chambers	33,843	Micropolitan Statistical Area
Troy, AL	Pike	33,286	Micropolitan Statistical Area

Figure 1 Alabama with MSAs as of 2016



Types of Monitoring Stations

PAMS – *Photochemical Assessment Monitoring Station*: PAMS are established to obtain more comprehensive data in areas with high levels of ozone pollution by also monitoring oxides of Nitrogen (NO_x) and volatile organic compounds (VOCs). **PAMS monitoring requirements were revised in the 2016 ozone NAAQS rule and a PAMS site will be required in the state of Alabama in Jefferson County.** This site will need to be operational by 2019.

SLAMS - *State or Local Ambient Monitoring Station*: The SLAMS make up ambient air quality monitoring sites that are primarily needed for NAAQS comparisons. **Alabama SLAMS are described in detail by pollutant and monitoring agency in the section labeled Alabama's SLAMS by Pollutant.**

STN – *PM_{2.5} Speciation Trends Network*: A PM_{2.5} speciation station designated to be part of the speciation trends network. This network provides chemical species data of fine particulates. **There is currently one STN site located in Alabama at the North Birmingham NCore site (01-073-0023) operated by JCDH.**

Supplemental Speciation - Any PM_{2.5} speciation station that is used to gain supplemental data and is not dedicated as part of the speciation trends network. **Two PM_{2.5} supplemental speciation sites are located in Alabama: Phenix City-Girard School (AQS ID 01-113-0003) operated by ADEM and Wylam (AQS ID 01-073-2003) operated by JCDH.**

NCore – *National Core multi-pollutant monitoring station*: Sites that measure multiple pollutants at trace levels in order to provide support to integrated air quality management data needs. Each state is required to operate one NCore site. **The NCore site for Alabama is at the North Birmingham site (AQS ID 01-073-0023), Birmingham-Hoover MSA, operated by JCDH. Additional information concerning this site can be found in the JCDH Air Monitoring Network Description.**

CASTNET – *Clean Air Status and Trends Network*: is a national air quality monitoring network designed to provide data to assess trends in air quality, atmospheric deposition, and ecological effects due to changes in air pollutant emissions. CASTNET provides long-term monitoring of air quality in rural areas to determine trends in regional atmospheric nitrogen, sulfur, and ozone concentrations and deposition fluxes of sulfur and nitrogen pollutants in order to evaluate the effectiveness of national and regional air pollution control programs. EPA-sponsored CASTNET ozone monitors are Part 58 compliant, therefore the data can be used for regulatory purposes. CASTNET Ozone data is now reported to AQS. **There is one CASNET site in Alabama, Sand Mountain in DeKalb County (AQS ID 01-049-9991), operated by an EPA contractor.**

SO₂ Data Requirements Rule (DRR)– Effective September 21, 2015, per 40 CFR Part 51, states are required to report all sources that generate >2,000 tpy SO₂, not dependent upon population density. Each source in this category must characterize air quality through air quality modeling or ambient air monitoring. Each source that chooses monitoring must operate their site equivalent with the SLAMS requirements of 40 CFR Part 58. Source-oriented monitoring for SO₂ is required from January 1, 2017 through December 31, 2019 for adequate data to calculate a valid design value. **Alabama has one DRR SO₂ monitoring site, Lhoist (AQS ID 01-117-9001) operated by a contractor.**

Alabama's SLAMS by Pollutant

Lead Network

In 2008, EPA revised the NAAQS for lead (Pb). The Pb standard was lowered from 1.5 ug/m³ for a quarterly average to 0.15 ug/m³ based on the highest rolling 3-month average over a 3-year period. EPA set minimum monitoring requirements for source and population oriented monitoring. Source oriented monitoring is required near sources that have Pb emissions ≥ 1 ton per year. Population oriented monitoring is required for CBSAs $> 500,000$. In December 2010, EPA revised the Pb rule to require source-oriented monitors for sources greater than $\frac{1}{2}$ ton per year and stated that population oriented monitors would be located at NCore sites. In March, 2016, EPA removed the requirement for Pb monitoring at NCore sites that were not located near a Pb emissions source.

Based on current emissions data or modeling, ADEM has identified one source, Sanders Lead Co., located in Troy, Pike County (not within a CBSA), which emits greater than 1/2 ton of Pb per year. Troy (AQS ID 01-109-0003), operated by ADEM, has been monitoring for Pb near that source since 2009. To meet QA requirements, collocated lead monitoring is also occurring at this site.

Based on current emissions data, JCDH and the HDNREM have no sources that would require Pb monitoring.

Based on population requirements, North Birmingham NCore site, Birmingham-Hoover MSA (AQS ID 01-073-0023), operated by JDCH, has been collecting Pb monitoring data since 12-29-2011. JCDH discontinued Pb monitoring at the North Birmingham NCore site at the end of calendar year 2016.

No additional changes are proposed for this network.

Carbon Monoxide (CO) Network

On August 12, 2011 EPA issued a final rule that retained the existing NAAQS for Carbon Monoxide (CO) and made changes to the ambient air monitoring requirements. EPA revised the minimum requirements for CO monitoring by requiring CO monitors to be sited near roads in certain urban areas.

40 CFR Part 58 Appendix D, 4.2 details the requirements for CO monitoring.

4.2.1 General Requirements. (a) Except as provided in subsection (b), one CO monitor is required to operate collocated with one required near-road NO₂ monitor, as required in Section 4.3.2 of this part, in CBSAs having a population of 1,000,000 or more persons. If a CBSA has more than one required near-road NO₂ monitor, only one CO monitor is required to be collocated with a near-road NO₂ monitor within that CBSA. (b) If a state provides quantitative evidence demonstrating that peak ambient CO concentrations would occur in a near-road location which meets microscale siting criteria in Appendix E of this part but is not a near-road NO₂ monitoring site, then the EPA Regional Administrator may approve a request by a state to use such an alternate near-road location for a CO monitor in place of collocating a monitor at near-road NO₂ monitoring site.

Those monitors required in CBSAs having 1 million or more persons were required to be operational by January 1, 2017.

Based on this, the requirement for a CO monitor to be collocated with the near road NO₂ monitor in the Birmingham-Hoover CBSA and operational by January 1, 2017 is satisfied at the Near Road Arkadelphia Site (AQS ID 01-073-2059), operated by JCDH.

Currently CO is monitored at the following sites :

Table 3 JCDH CO Monitoring Sites

AQS No.	County	Site Name	Latitude	Longitude	Start Date	Objective	Scale	Frequency
01-073-0023	Jefferson	N. B'ham, SR	33.553031	-86.814853	3/1/2000	High Pop. Exposure	Neighborhood	Continuously Year-round
01-073-1003	Jefferson	Fairfield, PFD	33.485556	-86.915062	12/11/74	High Pop. Exposure	Neighborhood	Continuously Year-round
01-073-2059	Jefferson	Arkadelphia Near Road Site	33.521427	-86.815000	1/1/2014	High Pop. Exposure	Micro	Continuously Year-round

No changes are proposed for this network.

Nitrogen Dioxide (NO₂) Network

On January 22, 2010 the US EPA finalized the monitoring rules for Nitrogen Dioxide (NO₂). The new rules include new requirements for the placement of new NO₂ monitors in urban areas.

These include:

Near Road Monitoring

At least one monitor must be located near a major road in each CBSA with a population $\geq 500,000$ people. A second monitor is required near another major road in areas with either a CBSA population ≥ 2.5 million people, or one or more road segment with an annual average daily traffic (AADT) count $\geq 250,000$ vehicles.

These NO₂ monitors must be placed near those road segments ranked with the highest traffic levels by AADT, with consideration given to fleet mix, congestion patterns, terrain, geographic location, and meteorology in identifying locations where the peak concentrations of NO₂ are expected to occur. Monitors must be placed no more than 50 meters (about 164 feet) away from the edge of the nearest traffic lane.

For near road NO₂ monitoring, Birmingham-Hoover is the only CBSA in Alabama with a population greater than 500,000. However, the population is less than 2.5 million and there are no road segments with AADT greater than 250,000 vehicles. Therefore, only one near road NO₂ monitor is located in the Birmingham-Hoover CBSA. JCDH has established a site at Arkadelphia Road known as Near Road Site (AQS ID 01-073-2059), that monitors for NO₂, CO and PM_{2.5}. The establishment of a permanent near-road NO₂ monitoring site meeting design and siting criteria as specified in 40 CFR Part 58 was operational on January 1, 2014.

Community Wide Monitoring

A minimum of one monitor must be placed in any urban area with a population greater than or equal to 1 million people to assess community-wide concentrations.

For community wide monitoring, Birmingham-Hoover is the only CBSA in Alabama with a population greater than 1 million, thereby requiring one NO₂ monitor. North Birmingham NCore (AQS ID 01-073-0023), operated by JCDH, monitors for NO_y and NO₂ based on community wide requirements.

No changes are proposed for this network.

Sulfur Dioxide (SO₂) Network

Effective August 23, 2010, EPA strengthened the primary National Ambient Air Quality Standard (NAAQS) for sulfur dioxide (SO₂). EPA established a new 1-hour standard at a level of 75 parts per billion (ppb), based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations..

According to EPA, for a short-term 1-hour SO₂ standard, it is more technically appropriate, efficient, and effective to use modeling as the principal means of assessing compliance for medium to larger sources, and to rely more on monitoring for groups of smaller sources and sources not as conducive to modeling. Such an approach is consistent with EPA's historical approach and longstanding guidance for SO₂. EPA is setting specific minimum requirements that inform states on where they are required to place SO₂ monitors. The final monitoring regulations require monitors to be placed in Core Based Statistical Areas (CBSAs) based on a Population Weighted Emissions Index (PWEI) for the area. The final rule requires:

- 3 monitors in CBSAs with PWEI values of 1,000,000 or more;
- 2 monitors in CBSAs with PWEI values less than 1,000,000 but greater than 100,000;
and
- 1 monitor in CBSAs with PWEI values greater than 5,000.

According to the latest PWEI calculations listed in Table 4, only the Birmingham-Hoover and Mobile CBSAs require SO₂ monitoring.

The Birmingham-Hoover CBSA requires one SO₂ monitor. North Birmingham NCore (AQS ID 01-073-0023) and Fairfield (AQS ID 01-073-1003), operated by JCDH, monitor for SO₂ to fulfill the requirement.

The Mobile CBSA requires one SO₂ monitor. Chickasaw (AQS ID 01-097-0003), operated by ADEM since 01/01/2013, monitors for SO₂ to fulfill the requirement.

Effective September 21, 2015, per 40 CFR Part 51, states are required to report all sources that generate >2,000 tpy SO₂, not dependent upon population density. For each source in this category, air quality must be determined through air quality modeling or ambient air monitoring.

For sources that are characterized by monitoring operation of the site must be equivalent with the SLAMS requirements of 40 CFR Part 58.

Lhoist North America of Alabama, LLC – Montevallo Plant, (AQS ID 01-117-9001) located in Calera, Birmingham-Hoover MSA will be characterized by monitoring. Monitoring began on January 1, 2017.

ADEM plans to begin monitoring SO₂ at the Ward site in Sumter County (AQS ID 01-119-0003) as a background site beginning in January 2018. The monitor will be designated as a Special Purpose Monitor (SPM).

No other changes are planned for this network.

Table 4 CBSA's PWEI and Number of Monitors Required**May 2017 - Using 2016 Census Estimates & 2014 NEI**

CBSA Name	2014 NEIv1 SO2 (tpy)	Population (2015)	PWEI in Million persons-tpy	Required Monitors
Birmingham-Hoover, AL	58,055	1,147,417	66,613	1
Mobile, AL	17,168	414,836	7,122	1
Florence-Muscle Shoals, AL	22,500	146,534	3,297	0
Montgomery, AL	6,620	373,922	2,475	0
Columbus, GA-AL	4,308	308,755	1,330	0
Decatur, AL	4,496	152,256	685	0
Talladega-Sylacauga, AL	1,529	90,684	139	0
Gadsden, AL	4,537	102,564	465	0
Scottsboro, AL	7,519	52,138	392	0
Cullman, AL	466	82,471	38	0
Troy, AL	7,779	33,286	259	0
Tuscaloosa, AL	2,018	241,378	487	0
Huntsville, AL	2,085	449,720	938	0
Daphne-Fairhope-Foley, AL	563	208,563	117	0
Dothan, AL	742	147,834	110	0
Selma, AL	1,138	40,008	46	0
Auburn-Opelika, AL	686	158,991	109	0
Anniston-Oxford, AL	764	114,611	88	0
Albertville, AL	998	95,157	95	0
Ozark	175	49,226	9	0
Valley, AL	298	33,843	10	0
Enterprise-Ozark, AL	419	51,226	21	0

PM₁₀ Network

PM₁₀ has been a criteria pollutant since 1987. Since that time there has been widespread monitoring of the PM₁₀ levels in Alabama. In 2006 the US EPA modified the NAAQS for PM₁₀ to revoke the annual standard. Currently, there is still a daily standard of 150 ug/m³ based on 3 years of data. All monitors in the state have recorded PM₁₀ levels that meet the NAAQS. Table 5 shows the minimum monitoring requirements.

Table 5 Appendix D to Part 58. PM 10 Minimum Monitoring Requirements

TABLE D-4 OF APPENDIX D TO PART 58. PM ₁₀ MINIMUM MONITORING REQUIREMENTS (NUMBER OF STATIONS PER MSA) ¹			
Population category	High concentration ²	Medium concentration ³	Low concentration ^{4,5}
>1,000,000	6-10	4-8	2-4
500,000-1,000,000	4-8	2-4	1-2
250,000-500,000	3-4	1-2	0-1
100,000-250,000	1-2	0-1	0

¹ Selection of urban areas and actual numbers of stations per area within the ranges shown in this table will be jointly determined by EPA and the State Agency.

² High concentration areas are those for which ambient PM₁₀ data show ambient concentrations exceeding the PM₁₀ NAAQS by 20 percent or more.

³ Medium concentration areas are those for which ambient PM₁₀ data show ambient concentrations exceeding 80 percent of the PM₁₀ NAAQS.

⁴ Low concentration areas are those for which ambient PM₁₀ data show ambient concentrations less than 80 percent of the PM₁₀ NAAQS.

⁵ These minimum monitoring requirements apply in the absence of a design value.

The Birmingham-Hoover MSA has a population >1,000,000 and PM₁₀ concentrations ≥ 80 percent of the PM₁₀ National Ambient Air Quality Standards (NAAQS). According to Table 5 above, the Birmingham-Hoover MSA is required to operate between 4 and 8 PM₁₀ monitoring sites. Due to historically low PM₁₀ concentrations and lower populations in Walker, Shelby, and Chilton Counties, these required sites are located in Jefferson County and operated by JCDH where the population and emissions are primarily concentrated. Currently, JCDH operates PM₁₀ monitors at five sites which are acceptable for comparison to the NAAQS.

The North Birmingham NCore site (AQS ID 01 073 0023) has three PM₁₀ monitors: the primary monitor on a 1 in 3 day schedule, a collocated monitor on a 1 in 6 day schedule and one continuous monitor.

The Leeds Elementary School site (AQS ID 01-073-1010) has one PM₁₀ monitor on a 1 in 6 day schedule.

The Wylam site (AQS ID 01-073-2003) has three PM₁₀ monitors: a primary and collocated low volume monitor on a 1 in 6 day schedule, and a continuous monitor. JCDH is proposing to discontinue operation of all low volume PM₁₀ monitors at this site.

The Tarrant Elementary School site (AQS ID 01 073 6002) has one continuous PM₁₀ monitors. A low volume PM₁₀ monitor was discontinued at the end of 2016.

The Sloss Shuttlesworth site (AQS ID 01-073-6004) has one continuous PM₁₀ monitor.

According to Table 5, Columbus, GA-AL, Huntsville, Mobile and Montgomery MSAs, with populations between 250,000 and 500,000 and concentrations less than 80% of the NAAQS, are required to have 0 to 1 monitors.

In the Huntsville MSA, HDNREM operates high volume PM₁₀ monitors on a 1 in 6 day schedule, which are comparable to the NAAQS, at each of the following sites: Pulaski Pike-Fire St. #10 (AQS ID 01-089-0002), South Parkway-Fire St. #7 (AQS ID 01-089-0004) and Huntsville Old Airport Road (AQS ID 01-089-0014). The Huntsville Old Airport Road site (AQS ID 01-089-0014) is also the location of a continuous hi-volume PM₁₀ monitor. Additionally, a special purpose hi-volume PM₁₀ monitor is located at the Downtown Garage Site (AQS ID 01-089-0003) for daily reporting to the public only, not for NAAQS comparison.

In the Montgomery MSA, ADEM operates two high volume PM₁₀ monitors on a 1 in 6 day schedule at the MOMS site (AQS ID 01-101-1002), one of them being the collocated quality assurance monitor. No changes are proposed in this MSA.

Ozone Network

Effective December 28, 2015, the level of the NAAQS for ozone was changed from 0.075 to 0.070 ppm. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm.

Minimum monitoring requirements for ozone are based on population and whether the design value is <85% of the NAAQS, or ≥85% of the NAAQS (See Table 6). Since the NAAQS for ozone is 0.070 parts per million of ozone then 85% of the NAAQS truncated is 0.059 ppm

Table 6 Appendix D To Part 58. Slams Minimum O3 Monitoring Requirements

TABLE D-2 OF APPENDIX D TO PART 58 SLAMS MINIMUM O3 MONITORING REQUIREMENTS		
MSA population ^{1, 2}	Most recent 3-year design value concentrations ≥85% of any O3 NAAQS ³	Most recent 3-year design value concentrations <85% of any O3 NAAQS ^{3, 4}
>10 million	4	2
4–10 million	3	1
350,000–<4 million	2	1
50,000–<350,000 ⁵	1	0

1 Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

2 Population based on latest available census figures.

3 The ozone (O3) National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

4 These minimum monitoring requirements apply in the absence of a design value.

5 Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

Table 7 lists Alabama's Ozone sites, AQS ID, 2014-2016 one Design Values, MSA name, maximum design value of the MSA, number of Ozone monitors required by the CFR, and the current number of Ozone monitors.

Table 7 Alabama MSAs with Ozone Monitoring Sites and Current Design Value

Site Name	AQS ID	2014-2016 Design Values	MSA	MSA Max DV	# of sites required per CFR	Current # of sites
North Birmingham Ncore	01-073-0023	0.068	Birmingham-Hoover	0.068	2	8
Fairfield	01-073-1003	0.066				
McAdory School	01-073-1005	0.066				
Leeds Elem. School	01-073-1010	0.064				
Hoover	01-073-2006	0.066				
Corner High School	01-073-5003	0.064				
Tarrant Elem. School	01-073-6002	0.068				
Helena	01-117-0004	0.067				
Phenix City - Ladonia	01-113-0002	0.062	Columbus, GA- Phenix City, AL	0.062	1	2*
Columbus, GA, Airport	13-215-0008	0.062				
Decatur	01-103-0011	0.064	Decatur	0.064	1	1
Dothan	01-069-0004	0.059	Dothan	0.059	1	1
Fairhope	01-003-0010	0.065	Daphne-Fairhope	0.065	1	1
Muscle Shoals	01-033-1002	0.059	Florence-Muscle Shoals	0.059	1	1
Southside	01-055-0011	0.061	Gadsden	0.061	0	1
Huntsville Old Airport	01-089-0014	0.064	Huntsville	0.064	2	2
Huntsville Capshaw RD	01-089-0022	0.062				
Mobile - Chickasaw	01-097-0003	0.063	Mobile	0.065	2	2
Mobile - Bay Road	01-097-2005	0.065				
Wetumpka	01-051-0003	NA***	Montgomery	0.062	2	2
Montgomery - MOMS	01-101-1002	0.062				
Duncanville, Tuscaloosa	01-125-0010	0.060	Tuscaloosa	0.06	0	1
Ward (Background)	01-119-0003	0.057	not in MSA	NA		1
Sand Mtn. **	01-049-9991	0.063	not in MSA	NA		
No monitor			Anniston-Oxford	NA	0	
No monitor			Auburn-Opelika	NA	0	
			DV ≥ 85% of the NAAQS			

*1 in AL and 1 in GA

** CASTNET site operated by EPA contractor

NA***New Site-No design value

Ozone Monitoring requirements for Alabama MSAs

Birmingham-Hoover MSA

Using the 2016 Birmingham-Hoover MSA population estimate in 2016 (Table 2) and the design value from Table 7, two Ozone monitors are required in this MSA. There are currently eight Ozone sites in this MSA. One site, Helena (AQS ID: 01-117-0004), operated by ADEM, is located in Shelby County. Seven sites, North Birmingham NCore (AQS ID: 01-073-0023), Fairfield (AQS ID: 01-073-1003), McAdory School (AQS ID: 01-073-1005), Leeds Elementary School (AQS ID: 01-073-1010), Hoover (AQS ID: 01-073-2006), Corner High School (AQS ID: 01-073-5003) and Tarrant Elementary School (AQS ID: 01-073-6002), operated by JCDH, are located in Jefferson County. Additional information about these monitors is found in the JCDH Network description. JCDH is proposing to close the Hoover (AQS ID: 01-073-2006) site.

Columbus, GA/AL MSA

Using the Columbus GA/AL MSA population estimate in 2016 (Table 2) and the design value from Table 7, one Ozone monitor is required for this MSA. There are currently two Ozone sites in this MSA. One site, Ladonia (AQS ID: 01-113-0002), operated by ADEM, is west of Phenix City in Russell County, and the other site, Columbus, GA, Airport (AQS ID: 13-215-0008), operated by Georgia Environmental Protection Division, is located in Georgia. EPA approved ADEM closing the Ladonia (AQS ID: 01-113-0002) site at the end of the 2017 ozone season and moving the required monitor to a consolidated Phenix City-South Girard School (AQS ID 01-113-0003) site in 2018.

Decatur MSA

Using the Decatur MSA population estimate in 2016 (Table 2) and the design value from Table 7, one Ozone monitor is required for this MSA. There is currently one Ozone site, Decatur (AQS ID: 01-103-0011), operated by ADEM. No changes are planned for this MSA.

Dothan MSA

Using the Dothan MSA population estimate in 2016 (Table 2) and the design value from Table 7, one Ozone monitor is required for this MSA. There is currently one Ozone site, Dothan (AQS ID: 01-069-0004), operated by ADEM. No changes are planned for this MSA.

Daphne-Fairhope-Foley MSA

Using the Daphne-Fairhope-Foley MSA population estimate in 2016 (Table 2) and the design value from Table 7, one Ozone monitor is required for this MSA. There is currently one Ozone site, Fairhope (AQS ID: 01-003-0010), operated by ADEM. No changes are planned for this MSA.

Florence-Muscle Shoals MSA

Using the Florence-Muscle Shoals MSA population estimate in 2016 (Table 2) and the design value from Table 7, one Ozone monitor is required for this MSA. There is currently one Ozone site, Muscle Shoals (AQS ID: 01-033-1002), operated by ADEM. No changes are planned for this MSA.

Gadsden MSA

Using the Gadsden MSA population estimate in 2016 (Table 2) and the design value from Table 7, one Ozone monitor is required for this MSA. There is currently one Ozone site, Southside (AQS ID: 01-055-0011), operated by ADEM. No changes are planned for this MSA.

Huntsville MSA

Using the Huntsville MSA population estimate in 2016 (Table 2) and the design value from Table 7, two Ozone monitors are required for this MSA. There are currently two Ozone sites, Huntsville Old Airport (AQS ID: 01-089-0014) and Huntsville Capshaw Rd (01-089-0022), operated by HDNREM. No changes are planned for this MSA.

Mobile MSA

Using the Mobile MSA population estimate in 2016 (Table 2) and the design value from Table 7, two Ozone monitors are required for this MSA. There are currently two Ozone sites, Chickasaw (AQS ID: 01-097-0003) and Bay Road (01-097-2005), operated by ADEM. No changes are planned for this MSA.

Montgomery MSA

Using the Montgomery MSA population estimate in 2016 (Table 2) and the design value from Table 7, two Ozone monitors are required for this MSA. There are currently two Ozone sites, MOMS (AQS ID: 01-101-1002) and Wetumpka (AQS ID: 01-051-0002), operated by ADEM. The Wetumpka, DBT (AQS ID: 01-051-0001) closed on 06/27/2016 and the new ozone monitoring site, Wetumpka (AQS ID: 01-051-0002) began operating on 03/17/2017.

Tuscaloosa MSA

Using the Tuscaloosa MSA population estimate in 2016 (Table 2) and the design value from Table 7, one Ozone monitor is required for this MSA. There is currently one Ozone site, Duncanville (AQS ID: 01-125-0010), operated by ADEM. No changes are planned for this MSA.

Auburn-Opelika and Anniston-Oxford MSAs

The MSAs of Auburn-Opelika and Anniston-Oxford were evaluated by ADEM. Both MSAs have populations less than 160,000. It was determined that due to the close proximity of ozone monitors in the neighboring MSAs, additional ozone monitors would not be needed. Since these areas do not have design values, no Ozone monitors are required by Appendix D of 40 CFR 58.

Sites not located in an MSA

Sumter County represents rural, background ozone values for the state. The historical design values for this monitor have been less than 85% of the NAAQS. One Ozone site, Ward (AQS ID: 01-119-0003), operated by ADEM, is located in Sumter County. No changes are planned for this site.

There is an Ozone monitor, located at the CASTNET site near Crossville in DeKalb County, Sand Mountain (AQS ID: 01-149-9991), operated by EPA.

PM_{2.5} Network

Minimum monitoring requirements for PM_{2.5} are based on population and whether the design value is less than 85% of the NAAQS, or greater than or equal to 85% of the NAAQS (See Table 8). In addition to the FRM monitors required by Table 8, the state is required to operate a regional background and a regional transport site. Section 4.7.2 of Appendix D of 40 CFR Part 58 also requires a collocated continuous PM_{2.5} monitor in each MSA that is required to have a FRM monitor. The number of collocated continuous monitors required for an MSA will be equal to at least half of the required FRM monitors for that MSA. This requirement goes away if the continuous monitor is a FEM that is labeled as the primary and comparable to the NAAQS. The state is also required to operate PM_{2.5} speciation monitors to characterize the constituents of PM_{2.5}. The number of speciation monitors is determined in consultation with EPA Region IV. PM_{2.5} design values in Table 9 are based on 2014-2016 data. A design value of **29.75** ug/m³ is the lowest value which is $\geq 85\%$ of the 24-hour standard of 35 ug/m³. A design value of **10.2** ug/m³ is the lowest value that is $\geq 85\%$ of the annual standard of 12 ug/m³ (effective March 18, 2013).

Table 8 Appendix D To Part 58, PM_{2.5} Minimum Monitoring Requirements

TABLE D-5 OF APPENDIX D TO PART 58 PM _{2.5} MINIMUM MONITORING REQUIREMENTS		
MSA population ^{1,2}	Most recent 3-year design value $\geq 85\%$ of any PM _{2.5} NAAQS ³	Most recent 3-year design value $< 85\%$ of any PM _{2.5} NAAQS ^{3,4}
>1,000,000	3	2
500,000–1,000,000	2	1
50,000–<500,000 ⁵	1	0

1 Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

2 Population based on latest available census figures.

3 The PM_{2.5} National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

4 These minimum monitoring requirements apply in the absence of a design value.

5 Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

The current PM_{2.5} Rule requires CBSAs with populations greater than a million but less than 4 million operate a PM_{2.5} monitor at its NO₂ near road site by January 1, 2017. The only CBSA in Alabama that requires a NO₂ near road monitoring site is the Birmingham-Hoover MSA. The requirement is satisfied by Near Road Arkadelphia Site (AQS ID 01-073-2059), operated by JCDH.

In order to meet the continuous monitoring requirements of Appendix D, ADEM currently operates seven MetOne BAM monitors (AQS method code 731) which do not have FEM designation. These monitors are also used for AQI reporting and for submittal to the AirNow system. Comparison with the NAAQS will be based on the FRMs at each site which are designated as the primary monitor and operate on the required frequency.

Table 9 lists Alabama's PM_{2.5} sites, AQS ID, the 2014-2016 PM_{2.5} 24-hour and Annual and Design Values for each site, MSA name, the 2016 estimated population of the MSAs, the Annual and 24-hour Design Value for each MSA, number of monitors required by the CFR and the current number of PM_{2.5} monitors.

Table 9 MSAs with PM2.5 Monitoring Sites and current Design Value

Site Name	AQS Site ID	PM2.5 24 hr DV 2014-2016	PM2.5 Annual DV 2014- 2016	MSA	Annual MSA DV	24hr MSA DV	# of sites required per CFR	Current # of sites
North Birmingham NCore	01-073-0023	23	10.8	Birmingham-Hoover	11.2	23	3	6
McAdory School	01-073-1005	18	9.2					
Leeds Elem. School	01-073-1010	19	9.8					
Wylam	01-073-2003	19	10.1					
Sloss Shuttlesworth	01-073-6004	NA**	NA**					
Arkadelphia (Near Road)	01-073-2059	22	11.2					
Muscogee DH GA	13-215-0001	19	9.5	Columbus, GA/AL	9.7	24.0	0	4*
Columbus Airport GA	13-215-0008	19	9.2					
Cussetta Rd GA	13-215-0011	24	9.6					
Phenix City – South Girard School	01-113-0003	NA**	NA**					
Decatur	01-103-0011	17	8.5	Decatur	8.5	17.0	0	1
Dothan CC	01-069-0003	16	7.7	Dothan	7.7	16.0	0	1
Fairhope	01-003-0010	16	8.2	Daphne-Fairhope-Foley	8.2	16.0	0	1
Muscle Shoals	01-033-1002	18	8.5	Florence-Muscle Shoals	8.5	18.0	0	1
Gadsden - CC	01-055-0010	17	8.9	Gadsden	8.9	17.0	0	1
Huntsville Old Airport	01-089-0014	17	8.2	Huntsville	8.2	17.0	0	1
Mobile - Chickasaw	01-097-0003	18	8.5	Mobile	8.5	18.0	0	1
Montgomery – MOMS	01-101-1002	18	9.0	Montgomery	9.0	18.0	0	1
Tuscaloosa - VA Hospital	01-125-0004	17	8.5	Tuscaloosa	8.5	17.0	0	1
Ashland	01-027-0001	18	8.2	Not in MSA	8.2	18.0	1	1
Crossville	01-049-1003	17	8.8	Not in MSA	8.8	17.0	1	1
Childersburg	01-121-0002	18	9.3	Not in MSA	9.3	18.0	0	1
Ward, Sumter Co. Background (continuous)	01-119-0003			Not in MSA			1	1
No Monitor				Anniston-Oxford	NA	NA	0	0
No Monitor				Auburn-Opelika	NA	NA	0	0

DV ≥ 85% of the NAAQS

*1 in AL and 3 in GA

NA** incomplete data set

PM_{2.5} Monitoring requirements for Alabama MSAs

Birmingham-Hoover MSA

Using the Birmingham-Hoover MSA population estimate in 2016 (Table 2) and the design value from Table 9, three FRM and two continuous monitors are required for this MSA. JCDH operates 5 FRM monitors are located in Jefferson County, 4 collocated FRM monitors, 6 continuous monitors, 1 IMPROVE network speciation monitor, 1 STN speciation monitor, and 1 supplemental speciation monitor.

Locations and types of monitors operated are below:

North Birmingham NCore (AQS ID: 01-073-0023): one FRM monitor on a 1 in 3 day schedule, a collocated FRM on a 1 in 6 day schedule, a continuous monitor, an IMPROVE Speciation monitor on a 1 in 3 day schedule and an STN Speciation monitor on a 1 in 3 day schedule.

McAdory School (AQS ID: 01-073-1005): one FRM on a 1 in 3 day schedule, a collocated FRM on a 1 in 6 day schedule and a continuous monitor.

Leeds (AQS ID: 01-073-1010): one FRM on a 1 in 6 day schedule, a collocated FRM on a 1 in 6 day schedule and a continuous monitor.

Hoover (AQS ID: 01-073-2006): a continuous PM_{2.5} monitor. JCDH is proposing to discontinue this monitor.

Shuttlesworth (AQS ID: 01-073-6004): a continuous special purpose PM_{2.5} monitor.

Akadelphia Near Road Site (AQS ID: 01-073-2059): one FRM monitor on a 1 in 6 day schedule.

Wylam (AQS ID: 01-073-2003): one FRM on a 1 in 3 day schedule, a collocated FRM on a 1 in 6 day schedule, a continuous PM_{2.5} monitor and a PM_{2.5} Supplemental Speciation monitor.

Further details of the JCDH PM_{2.5} network can be found in the Network Description section of this document.

Columbus, GA/AL MSA

Using the Columbus, GA/AL MSA population estimate in 2016 (Table 2) and the design value from Table 9, no FRM monitor is required. There are currently four FRM monitors, one collocated FRM monitor, two non-FRM/FEM/ARM continuous monitors, and two speciation monitors in this MSA. ADEM operated one FRM monitor, one collocated FRM monitor, one speciation monitor, and one FEM continuous monitor at the Phenix City, AL site (AQS ID: 01- 113-0001) until September 2016. These monitors have been relocated to the Phenix City – South Girard School site (AQS ID: 01-113-0003). A continuous FEM monitor installed at the South Girard School site is not currently comparable to the NAAQS while it is in the 2-year evaluation period. The State of Georgia operates three FRM monitors, one speciation monitor and one continuous monitor in Columbus. No additional changes are planned for this MSA.

Daphne-Fairhope-Foley MSA

Using the Daphne-Fairhope-Foley MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM_{2.5} Monitoring Sites and current Design Value, no FRM monitor is required. There is currently one FRM monitor located at the Fairhope site (AQS ID: 01-003-0010). No changes are planned for this MSA.

Decatur MSA

Using the Decatur MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM2.5 Monitoring Sites and current Design Value, no FRM monitor is required. There is currently one FRM monitor and one non-FEM continuous monitor located at the Decatur site (AQS ID: 01-103-0011). No changes are planned for this MSA.

Dothan MSA

Using the Dothan MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM2.5 Monitoring Sites and current Design Value, no FRM monitor is required. There is currently one FRM monitor located at the Dothan Civic Center site (AQS ID: 01-069-0003). No changes are planned for this MSA.

Florence-Muscle Shoals MSA

Using the Florence-Muscle Shoals MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM2.5 Monitoring Sites and current Design Value, no FRM monitor is required. There is currently one FRM monitor located at the Muscle Shoals site (AQS ID: 01-003-1002). No changes are planned for this MSA.

Gadsden MSA

Using the Gadsden MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM2.5 Monitoring Sites and current Design Value, no FRM monitor is required. There is currently one FRM monitor and one non-FEM continuous monitor at the Gadsden Community College site (AQS ID: 01-055-0010). No changes are planned for this MSA.

Huntsville MSA

Using the Huntsville MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM2.5 Monitoring Sites and current Design Value, no FRM monitor is required. Currently, there is one FRM, one collocated FRM monitor and one non-FRM/FEM/ARM continuous monitor, operated by HDNREM, located in this MSA. No changes are planned for this MSA.

Mobile MSA

Using the Mobile MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM2.5 Monitoring Sites and current Design Value, no FRM monitor is required. There is currently one FRM monitor and one non-FEM continuous monitor located at the Chickasaw site (AQS ID: 01-097-0003). No changes are planned for this MSA.

Montgomery MSA

Using the Montgomery MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM2.5 Monitoring Sites and current Design Value, no FRM monitor is required. There is currently one FRM monitor, one collocated FRM monitor, and one non-FEM continuous monitor located at the MOMS, ADEM site (AQS ID: 01- 101-1002). No changes are planned for this MSA.

Tuscaloosa MSA

Using the Tuscaloosa MSA population estimate in 2016 (Table 2) and the design value from Table 9 MSAs with PM_{2.5} Monitoring Sites and current Design Value, no FRM monitor is required. There is currently one FRM monitor and one non-FEM continuous monitor located at the VA, Tuscaloosa site (AQS ID: 01-125-0004). No changes are planned for this MSA.

Auburn-Opelika and Anniston-Oxford MSAs

The MSAs of Auburn-Opelika and Anniston-Oxford were evaluated to determine the need for monitors. Both MSAs have populations less than 160,000. It was determined that due to the close proximity of PM_{2.5} monitors in neighboring MSAs, additional monitors would not be needed. PM_{2.5} monitoring in the adjacent MSAs continue to provide adequate coverage. Since these areas do not have design values, no FRM monitors are required by Appendix D of 40 CFR Part 58.

PM_{2.5} Monitors not located in MSAs

Sumter County represents rural, background PM_{2.5} values for the west part of the state. ADEM operated an FRM monitor in Sumter County until 2006. A non-FEM continuous monitor is currently being operated in Ward, Sumter County (AQS ID: 01-119-0003). ADEM intends to maintain this site.

The Micropolitan Statistical Area of Talladega-Sylacauga is adjacent to the Anniston-Oxford and the Birmingham-Hoover MSAs. There is currently one FRM monitor located in Childersburg, Talladega County (AQS ID: 01-121-0002). The PM_{2.5} design value from Table 9 is less than 85% of the NAAQS for this monitor. ADEM proposes to close this PM_{2.5} monitor due to its low design value and since it is not in an MSA. This site is not required by 40 CFR 58, Appendix D. The annual design values for the past five year are in Table 10 below.

Table 10 Childersburg Annual Design Values

	2012	2013	2014	2015	2016	
Annual	10.3	9.2	9.3	10.0	8.6	
24-hour	13.9	21.6	18.5	16.8	20.6	

An FRM monitor located near Ashland, Clay County (AQS ID: 01-027-0001), serves as a regional transport site in between the large MSAs of Birmingham-Hoover and Atlanta. The PM_{2.5} design value from Table 9 is less than 85% of the NAAQS. ADEM intends to maintain this site.

An FRM monitor in Crossville, DeKalb County (AQS ID: 01-049-1003), represents rural, background PM_{2.5} values for the northeast part of the state. The PM_{2.5} design value from Table 9 is less than 85% of the NAAQS. ADEM intends to maintain this site.

Quality Assurance

Each of the three monitoring agencies have US EPA approved Quality Assurance Program Plans that detail the activities used to control and document the quality of the data collected. Each agency operates as an independent Primary Quality Assurance Organization (PQAO) as defined by 40 CFR Part 58. Part of the EPA required quality control program for particulate monitors is the use of collocated particulate monitors. 40 CFR Part 58, Appendix A requires a percentage of manual particulate monitors to be collocated with FRM monitors so that quality statistics can be calculated. Each agency network includes monitors for this purpose.

Monitoring Equipment Evaluation

An evaluation of the condition of ambient monitors and auxiliary equipment was performed by each of the three monitoring agencies. The equipment was categorized as “good” or “poor”. As resources allow, equipment in “poor” condition will be replaced. A report of each Agency’s equipment evaluation will be submitted to the US EPA by July 1 each year.

NETWORK DESCRIPTIONS

A description of the ambient air monitoring networks for each air pollution agency, followed by detailed site evaluations, will be presented in this section.

Included will be:

- AQS ID
- Address
- Latitude and Longitude
- Scale
- Type
- Monitoring Objective
- Beginning Sampling Date and Ending Sampling Date
- Method
- Operating Schedule
- Is it comparable to the NAAQS?

ADEM AIR MONITORING NETWORK DESCRIPTION

Abbreviations	
Scale	
N	Neighborhood (0.5 – 4 Kilometers)
U	Urban (overall citywide conditions, 4 -50 kilometers)
R	Regional (usually rural, with homogenous geography, tens to hundreds of kilometers)
M	Middle Scale
Type	
CAS	CASNET operated by EPA
S	SLAMS
QA	QA Collocated Monitor
SPM	Special Purpose Monitor
Operating Schedule	
C	Continuous monitor
D	Daily 24-hour samples
3	1 24-hour sample every 3 days (on national schedule)
6	1 24-hour sample every 6 days (on national schedule)
Methods	
H	Hi-volume SSI sampler
L	Low Volume SSI
T	TEOM continuous monitor
B	BAM continuous monitor
U	UV photometric ozone analyzer
P	Pulsed Fluorescent
S	Hi-Volume Total Suspended Particulate monitor
G	Lead Analysis by Graphite furnace
NAAQS¹	
Y,N	Data suitable for comparison to NAAQS

¹ Collocated monitors must be operated in the same manner as the federal reference method but one monitor at the site is designated as the main monitor for comparison to the NAAQS.

PM₁₀

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	S C H E D U L E	M E T H O D	N E A R E S	Comment
Montgomery - MOMS	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery, AL	32.412811	-86.263394	N	S	Population Exposure/ Montgomery, AL	6/1/1993	active	S	6	Y	
Montgomery - MOMS	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery, AL	32.412811	-86.263394	N	Q A	Population Exposure/ Montgomery, AL	1/1/2013	active	S	6	Y	Collocated

Lead

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	S C H E D U L E	M E T H O D	N E A R E S	Comment
Troy	Pike	01-109-0003	Henderson Road, Troy, AL	31.790560	-85.979170	N	S	Highest Concentration / Troy,AL uSA	1/1/2009	active	S	6	Y	Source oriented
Troy	Pike	01-109-0003	Henderson Road, Troy, AL	31.790560	-85.979170	N	Q A	Highest Concentration / Troy,AL uSA	1/1/2009	active	S	6	Y	Collocated

PM 2.5

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N E A R Q S	Comment
Fairhope	Baldwin	01-003-0010	Fairhope High School, Fairhope, AL	30.497478	-87.880258	N	S	Population Exposure/ Mobile-Daphne- Fairhope	1/1/2000	active	L	3	Y	FRM
Ashland	Clay	01-027-0001	Ashland Airport	33.284928	-85.803608	R	S	Highest Concentration/ not in CBSA	1/1/1999	active	L	3	Y	FRM Regional Transport
Muscle Shoals	Colbert	01-033-1002	2nd Street and Wilson Dam Road	34.762619	-87.638097	N	S	Highest Concentration/ Florence-Muscle Shoals MSA	1/1/1999	active	L	3	Y	FRM
Crossville	DeKalb	01-049-1003	13112 Hwy 68, Crossville AL	34.288567	-85.969858	N	S P M	General/background/ not in CBSA	1/1/1999	active	L	3	Y	FRM
Gadsden C College	Etowah	01-055-0010	1001 Wallace Dr Gadsden, AL	33.991494	-85.992647	U	S	Population Exposure/ Gadsden MSA	1/1/2000	active	L	3	Y	FRM
Gadsden C College	Etowah	01-055-0010	1001 Wallace Dr Gadsden, AL	33.991494	-85.992647	U	S	Population Exposure/ Gadsden MSA	1/1/2014	active	B	C	N	Collocated Non- FEM Continuous
Dothan Civic Center	Houston	01-069-0003	126 North St Andrews St Civic Center	31.224783	-85.390789	N	S	Population Exposure/ Dothan-Enterprise- Ozark	1/7/2005	active	L	3	Y	FRM
Chickasaw	Mobile	01-097-0003	Iroquois and Azalea, Chickasaw	30.770181	-88.087761	N	S	Population Exposure/ Mobile-Daphne- Fairhope	7/19/2002	active	L	3	Y	FRM
Chickasaw	Mobile	01-097-0003	Iroquois and Azalea, Chickasaw	30.770181	-88.087761	N	S	Population Exposure/ Mobile-Daphne- Fairhope	3/1/2011	active	B	C	N	Collocated Non- FEM Continuous

PM 2.5 continued

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A Y L E E	T P E	Monitoring objective / CBSA	Date Began	Date Ended	S C H E M E T H O D E S	M E N D A N C E S	Comment
MOMS, ADEM	Montgomery	01-101-0002	1350 Coliseum Blvd, Montgomery, AL	32.412811	-86.263394	N	S	Population Exposure/ Montgomery MSA	1/16/2009	active	L	3 Y	FRM
MOMS, ADEM	Montgomery	01-101-0002	1350 Coliseum Blvd, Montgomery, AL	32.412811	-86.263394	N	Q	Population Exposure/ Montgomery MSA	1/16/2009	active	L	6 Y	Collocated FRM
MOMS, ADEM	Montgomery	01-101-0002	1350 Coliseum Blvd, Montgomery, AL	32.412811	-86.263394	N	S	Population Exposure/ Montgomery MSA	4/1/2009	active	B	C N	Collocated Non-FEM Continuous
Decatur	Morgan	01-103-0011	Wallace Ctr.Hwy 31, Decatur	34.530717	-86.967536	M	S	Population Exposure/ Decatur MSA	8/7/2001	active	L	3 Y	FRM
Decatur	Morgan	01-103-0011	Wallace Ctr.Hwy 31, Decatur	34.530717	-86.967536	M	S	Population Exposure/ Decatur MSA	4/1/2009	active	B	C N	Collocated Non-FEM Continuous
Phenix City	Russell	01-113-0001-1	1319 9th Ave., Phenix City	32.472136	-85.005028	N	S	Highest Concentration/ Columbus, GA-AL MSA	1/28/2016	9/22/2016	L	3 Y	FRM
Phenix City	Russell	01-113-0001-2	1319 9th Ave., Phenix City	32.472136	-85.005028	N	Q	Highest Concentration/ Columbus, GA-AL MSA	1/28/2016	9/22/2016	L	3 Y	Collocated FRM
Phenix City	Russell	01-113-0001-3	1319 9th Ave., Phenix City	32.472136	-85.005028	N	S	Highest Concentration/ Columbus, GA-AL MSA	1/28/2016	9/22/2016	T	C N	Collocated Non-FEM Continuous
Phenix City - S. Girard School	Russell	01-113-0003	510 6th Place South, Phenix City	32.437028	-84.999653	N	S	Highest Concentration/ Columbus, GA-AL MSA	1/19/2017	active	L	3 Y	FRM
Phenix City - S. Girard School	Russell	01-113-0003	510 6th Place South, Phenix City	32.437028	-84.999653	N	Q	Highest Concentration/ Columbus, GA-AL MSA	1/19/2017	active	L	3 Y	Collocated FRM
Phenix City - S. Girard School	Russell	01-113-0003	510 6th Place South, Phenix City	32.437028	-84.999653	N	S	Highest Concentration/ Columbus, GA-AL MSA	5/5/2017	active	T	C N	Collocated Non-FEM Continuous
Ward, Sumter County	Sumter	01-119-0003	NNE of Ward Post office, Sumter Co., Alabama	32.362606	-88.277992	R	S	Background/General/ not in MSA	3/1/2013	active	B	C N	Continuous For Background

PM 2.5 continued

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Comment
Childersburg	Talladega	01-121-0002	300 1 st Street Southeast, Childersburg, AL	33.27947	-86.349438	N	S	Highest Concentration/ Talladega-Sylacauga µSA	1/1/1999	active	L	3	Y	FRM
VA, Tuscaloosa	Tuscaloosa	01-125-0004	3701 Loop Road East	33.189931	-87.484189	N	S	Population Exposure/ Tuscaloosa MSA	10/1/2002	active	L	3	Y	FRM
VA, Tuscaloosa	Tuscaloosa	01-125-0004	3701 Loop Road East	33.189931	-87.484189	N	S P M	Population Exposure/ Tuscaloosa MSA	1/1/2014	active	B	3	N	Collocated Non-FEM Continuous

OZONE

Site common name	County	AQS Site ID	Address	Latitude	Longitude	State	Monitoring objective / CBSA	Date Began	Date Ended	SCHEMATIC	Comment
Fairhope	Baldwin	01-003-0010	Fairhope High School, Fairhope, AL	30.497478	-87.880258	NSPM	Population Exposure/ Mobile-Daphne-Fairhope	3/1/2000	active	UCY	
Muscle Shoals	Colbert	01-033-1002	Wilson Dam Rd And 2nd St	34.762619	-87.638097	NSPM	Population Exposure/ Decatur MSA	3/1/2003	active	UCY	
DBT	Elmore	01-051-0001	Dewberry Trail, Wetumpka	32.492533	-86.134986	US	Highest Concentration/ Montgomery MSA	3/1/1990	6/27/2016	UCY	
Wetumpka	Elmore	01-051-0002	206 Queen Ann Rd, Wetumpka	32.538364	-86.232347	US	Highest Concentration/ Montgomery MSA	3/1/2017	active	UCY	
Southside	Etowah	01-055-0011	1450 Parker Anderson Lane, Southside, AL	33.9039	-86.0539	NS	Highest Concentration/ Gadsden MSA	4/26/2002	active	UCY	
Dothan	Houston	01-069-0004	161 Buford Lane	31.188933	-85.423094	NS	Population Exposure/ Dothan-Enterprise-Ozark	3/14/2005	active	UCY	
Chickasaw	Mobile	01-097-0003	Iroquois And Azalea Chickasaw	30.770181	-88.087761	NS	Population Exposure/ Mobile-Daphne-Fairhope	3/2/1982	active	UCY	
Bay Road	Mobile	01-097-2005	Bay Rd. ,Mobile AL	30.4747	-88.1411	US	Highest Concentration/ Mobile-Daphne-Fairhope	3/1/1999	active	UCY	
MOMS, ADEM	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery, AL	32.412811	-86.263394	NS	Population Exposure/ Montgomery MSA	6/2/1993	active	UCY	
Decatur	Morgan	01-103-0011	Wallace Development Center	34.530717	-86.967536	US	General/Background/ Decatur MSA	4/1/2000	active	UCY	
Ladonia, Phenix City	Russell	01-113-0002	9 Woodland Drive (School) , Ladonia, AL	32.46735	-85.083447	USPM	Population Exposure/ Columbus, GA-AL MSA	3/1/2003	active	UCY	
Helena	Shelby	01-117-0004	Helena, Bearden Farm	33.3169	-86.825	US	Population Exposure/ Birmingham-Hoover-Talladega	1/1/1983	active	UCY	
Ward, Sumter Co.	Sumter	01-119-0003	NNE of Ward Post Office, Sumter Co., Alabama	32.362606	-88.277992	RSPM	General/Background/ not in MSA	3/1/2013	active	UCY	
Duncanville, Tuscaloosa	Tuscaloosa	01-125-0010	11690 Southfork Dr. Duncanville, AL	33.089772	-87.459733	US	Population Exposure/ Tuscaloosa MSA	2/1/2001	active	UCY	

SO₂

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Comment
Chickasaw	Mobile	01-097-0003	Iroquois And Azalea Chickasaw	30.76972	-88.0875	N	S	Population Exposure/ Mobile MSA	1/1/2013	active	P	C	Y	
Lhoist	Shelby	01-117-9001	7444 St. Hwy 25, Calera, AL.	30.0928	-86.8072	M	S	High Concentration – SO2 DRR	01/01/20 17	Active	P	C	Y	

JCDH AIR MONITORING NETWORK DESCRIPTION

(As of May 2017)

The network descriptions for the Jefferson County Department of Health are included in the site assessments in Appendix C.

HUNTSVILLE AIR MONITORING NETWORK DESCRIPTION

(As of April 2017)

Site ID	Pollutant(s) Monitored	Methodology	Operating Schedule	Monitoring Objective	Spatial Scale	MSA Represented	Site/Monitor Type	Begin Sampling	End Sampling
01-089-0002 Pulaski Pike	PM10*	SSI Hi – Vol	6 – Day	Population	Neighborhood	Huntsville	SLAMS	01/01/91	Active
01-089-0003 Downtown Garage	PM10	SSI Hi – Vol	Weekday	Population	Neighborhood	Huntsville	SPM Non-Regulatory	04/01/93	Active
01-089-0004 South Parkway	PM10*	SSI Hi – Vol	6 – Day	High Conc.	Middle	Huntsville	SLAMS	06/28/90	Active
01-089-0014 Huntsville Old Airport Road	PM10*	SSI Hi – Vol	6 – Day	Population	Urban	Huntsville	SLAMS	07/01/88	Active
	PM2.5*	SSI Lo – Vol	3 -- Day	Population	Urban	Huntsville	SLAMS	01/01/99	Active
	PM2.5	SSI Lo – Vol	Continuous	Population	Urban	Huntsville	SPM Non-Regulatory	10/09/03	Active
	Ozone*	UV Photometric	Continuous	Population	Neighborhood	Huntsville	SLAMS	01/01/75	Active
01-089-0022 Capshaw	Ozone*	UV Photometric	Continuous	High Conc.	Urban	Huntsville	SLAMS	07/01/11	Active

*Sites used for NAAQS comparison.

Site ID	Location	Geographical Coordinate	Three Closest Roads	Proposed Changes
01-089-0002 Pulaski Pike	5006 Pulaski Pike Huntsville, AL 35810	Latitude +34.788333 Longitude -86.616111	Pulaski Pike Stag Run Winchester Road	None Proposed
01-089-0003 Downtown Garage	Madison St. – Garage Huntsville, AL 35801	Latitude +34.728740 Longitude -86.585010	Madison Street Gates Street Fountain Circle	None Proposed

01-089-0004 South Parkway	11525 S. Memorial Pkwy Huntsville, AL 35803	Latitude +34.620278 Longitude -86.566389	South Memorial Parkway Redstone Road Hobbs Road	None Proposed
01-089-0014 Airport Road	Old Airport – Airport Rd. Huntsville, AL 35802	Latitude +34.687670 Longitude -86.586370	Airport Road Memorial Parkway Leeman Ferry Road	None Proposed
01-089-0022 Capshaw	1130 Capshaw Road Huntsville, AL 35757	Latitude +34.772727 Longitude -86.756174	Capshaw Road Wall Triana Highway Balch Road	None Proposed

APPENDIX A

Jefferson County Department Of Health (JCDH)

Annual Air Monitoring Network Plan

May 2017

Regulations codified at 40 CFR Part 58, Appendices D (Network Design Criteria for Ambient Air Quality Monitoring) and E (Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring) were reviewed to determine if modifications to the existing air monitoring network are required.

Summary of JCDH Network Review

Lead (Pb) monitoring is required in major urbanized areas where Pb levels have been shown or are expected to be of concern due to the proximity of Pb point source emissions. According to the new lead regulations, sources emitting a half ton or more of lead per year would be candidates for lead ambient air monitoring. There are no longer any significant point sources of lead emissions greater than the half ton threshold in Jefferson County. Therefore, based on past monitoring and 2015 emissions inventory data, a lead source monitoring site is not required.

The EPA revised the NAAQS for Nitrogen Dioxide and it was promulgated in February 2010. In this rule, EPA required changes to the monitoring network that will focus monitoring resources to capture short-term NO₂ concentrations near heavily trafficked roads, to assess area-wide (or community-wide) NO₂ concentrations, and to assess NO₂ concentrations for vulnerable and susceptible populations. Jefferson County has installed the requisite monitoring site in October 2013 which became operational on January 1, 2014. NO_y monitoring began at the NCore site January 1, 2011.

To determine localized concentrations of PM_{2.5} in the North Birmingham area, the Department conducted PM_{2.5} monitoring at the Shuttlesworth site for one year [from July 1, 2013 to September 30, 2014]. This was operated as a special purpose, non-SLAMS monitor. Concentrations and concentration variations were very similar to those at next closest, proximate site, the North Birmingham monitoring site. JCDH will continue to monitor for PM_{2.5} at this site using a continuous monitoring method where the results will be publically accessible through the AirNow website located in the JCDH webpage.

Continuous PM_{2.5} SPM (Special Purpose Monitors)

Continuous PM_{2.5} monitoring is required in relation to the minimum SLAMS monitoring requirement stated above; i.e., equal to at least one-half (round up) the minimum monitoring requirement. Jefferson County is required to operate two continuous PM_{2.5} monitors. However, seven continuous PM_{2.5} monitors are actually operated in Jefferson County for the purpose of AirNow mapping and six to support our Birmingham Air Quality website. Continuous PM_{2.5} monitors are collocated with manual PM_{2.5} monitors at North Birmingham, Wylam, McAdory and Leeds for quality assurance purposes.

Continuous SO₂ SPM (Special Purpose Monitors)

The Department established an SO₂ analyzer at the Shuttlesworth monitoring site.

The analyzer will be operated for one (1) year, after which time the data will be reviewed. If the data show consistent exceedances of the SO₂ standards, the analyzer would be operated a full three (3) years to obtain a design value.

Network Review Findings

The existing network as summarized in the attached Air Monitoring Network Description complies with 40 CFR Part 58 requirements. The described network should adequately characterize typical population exposure concentrations and compliance status with the NAAQS for pollutants of concern.

The monitoring site location map can be found in APPENDIX D .

APPENDIX B

Huntsville Department of Natural Resources and Environmental Management (HDNREM)

Annual Air Monitoring Network Plan

April 25, 2017

Regulations codified at 40 CFR Part 58, Appendices A (Quality Assurance Requirements for SLAMS, SPMs and PSD Air Monitoring), C (Ambient Air Quality Monitoring Methodology), D (Network Design Criteria for Ambient Air Quality Monitoring) and E (Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring) were reviewed to determine if modifications to the existing air monitoring network are required.

NCore Ambient Air Monitoring Stations

Each State is required to operate one NCore site (multipollutant). Huntsville was not selected for the NCore site.

PAMS (Photochemical Assessment Monitoring Stations)

PAMS monitoring is required in areas classified as serious, severe, or extreme for the 8-hour ozone standard. Huntsville is presently classified as an ozone attainment area. Consequently, PAMS monitoring is not required.

SLAMS (State and Local Air Monitoring Stations)

The minimum ozone monitoring requirements are based on MSA (Metropolitan Statistical Area) populations and 3-year design value concentrations. The Huntsville MSA population is 417,593 based on the 2010 decennial census population. Huntsville's 3-year design value concentration for 2014-2016 is .064 ppm. MSA's with populations of 50,000 to less than 350,000 having a design value $\geq 85\%$ of the O₃ NAAQS are required to operate one ozone site. MSA's with populations of 350,000 to less than 4,000,000 are required to operate two ozone sites. Huntsville operates two ozone monitoring sites, as required.

There is a two-tier minimum nitrogen dioxide (NO₂) monitoring requirement. Near-road microscale monitoring is required in each CBSA (Core-based statistical area) with a population of 1,000,000 or more. Area-wide high concentration monitoring is required in each CBSA with a population of 1,000,000 or more. The Huntsville CBSA population is 417,593. Huntsville is not required to operate a SLAMS NO₂ monitor.

The minimum monitoring requirements for carbon monoxide (CO) require one monitor be collocated with a near-road NO₂ monitor in each CBSA with a population of 1,000,000 or more. Huntsville is not required to operate a SLAMS CO monitor.

The minimum sulfur dioxide (SO₂) monitoring requirements are based on a Population Weighted Emissions Index (PWEI), which is calculated by multiplying the population of the CBSA and the total SO₂ emissions (using the most recent published version of the National Emissions

Inventory (NEI)) within the CBSA area. The resulting product is then divided by one million, representing million persons-tons per year. Areas having a PWEI greater than 1,000,000 are required to operate 3 monitors; areas having a PWEI equal to or greater than 100,000 but less than 1,000,000 are required to operate 2 monitors; areas having a PWEI greater than 5,000 but less than 100,000 are required to operate 1 monitor. The Huntsville PWEI is 153 (based on 2010 decennial census population and 2014 NEI, total SO₂ emissions data for the Huntsville CBSA). Huntsville is not required to operate a SLAMS SO₂ monitor.

Lead monitoring (Pb) is required in areas where Pb levels have been shown or are expected to be of concern due to the proximity of Pb point source emissions. Generally, industrial sources emitting 0.5 ton or more of lead per year and airports emitting 1.0 ton or more per year would be candidates for lead ambient air monitoring. There are no significant point sources of lead emissions in Huntsville. Based on past monitoring and emissions inventory data, a SLAMS lead site is not required.

Huntsville's PM₁₀ concentrations are less than 80 percent of the PM₁₀ NAAQS (National Ambient Air Quality Standards). Based on Huntsville's MSA population being between 250,000-500,000 and low concentrations, Huntsville is required to operate 1 site. Huntsville operates 3 PM₁₀ sites located in south, central, and north Huntsville. These monitors can be operated at very low cost and provide good spatial coverage within the city. Experience has shown that members of the public want ambient air monitoring to be performed in their part of the city, and the PM₁₀ monitoring sites provide a monitoring presence at relatively low cost. Furthermore, the PM₁₀ data provide an indirect indication of PM_{2.5} spatial variability at a tiny fraction of the cost of operating multiple PM_{2.5} sites.

The minimum PM_{2.5} monitoring requirements are based on MSA populations and 3-year design value concentrations. Huntsville's 3-year design value concentration for 2014-2016 is 17.0 µg/m³ for the 24-hour standard and 8.2 µg/m³ for the annual standard. MSA's with populations of 50,000 to less than 500,000 having a design value ≥ 85% of the PM_{2.5} NAAQS are required to operate one PM_{2.5} site on a 1 in 3 day sampling frequency. Huntsville operates one PM_{2.5} site on a 1 in 3 day schedule although the current design values are <85% of the NAAQS. Note: Operating frequency increases to daily sampling when the 24-hour design value is within ± 5 percent of the 24-hour PM_{2.5} NAAQS (34, 35, and 36 µg/m³).

SLAMS sites were also evaluated to determine consistency of spatial scales with stated monitoring objectives. Reference the attached monitoring network description. In addition to the information listed below, the description also indicates site locations, monitoring methodologies, and operational schedules.

Site #	Site Name	Pollutant	Monitoring Objective	Current Spatial Scale based on ADT* for nearest streets	Scale Meets Objective
0002	Pulaski	PM ₁₀	Population	Neighborhood	Yes
0004	South Parkway	PM ₁₀	High Conc.	Middle	Yes
0014	Airport Road	PM ₁₀	Population	Urban	Yes
0014	Airport Road	PM _{2.5}	Population	Urban	Yes
0014	Airport Road	O ₃	Population	Neighborhood	Yes
0022	Capshaw	O ₃	High Conc.	Urban	Yes

Notes:

Site 0002	Monitor 30.5 m from Pulaski Pike	ADT 14,400	Probe Ht. 4.3 m
Site 0004	Monitor 30.5 m from Mem. Pkwy.	ADT 33,000	Probe Ht. 4.3 m
Site 0014	Monitors 91 m from Airport Road	ADT 15,100	Probe Ht of PM monitors – 4.3 m
	Monitors 548 m from Mem. Pkwy.	ADT 66,550**	Probe Ht of continuous monitor(s) 4.5 m
Site 0022	Monitor 30 m from Capshaw Road	ADT 12,400	Probe Ht. 4.0 m

ADT = Average Daily Traffic

*Traffic count data as provided by the Traffic Engineering Department represents 2014, 2015 and 2016 data.

**ADT counts on Memorial Parkway immediately north and south of Airport Road averaged.

SPM (Special Purpose Monitors)

The special purpose PM₁₀ monitor is operated Monday – Friday from 3:00 p.m. – 3:00 a.m. This data is used in reporting the daily Air Quality Index to the local print and television media.

Continuous PM_{2.5} monitoring is required in relation to the minimum SLAMS monitoring requirement stated above; i.e., equal to at least one-half (round up) the minimum monitoring requirement. Huntsville is therefore required to operate one continuous PM_{2.5} monitor. This monitor is a non-FRM/FEM/ARM. This data is used to support public reporting and forecasting of the Air Quality Index.

Site #	Site Name	Pollutant	Monitoring Objective	Current Spatial Scale based on ADT* for nearest streets	Scale Meets Objective
0003	Downtown Garage (AQI Reporting Site)	PM ₁₀	Population	Neighborhood	Yes
0014	Airport Road	PM _{2.5}	Population	Urban	Yes

ADT = Average Daily Traffic

*Traffic count data as provided by the Traffic Engineering Department represents 2014, 2015 and 2016 data.

Network Review Findings

The existing network as summarized in the attached Air Monitoring Network Description complies with 40 CFR Part 58 requirements.

APPENDIX C

Site Assessments

ADEM

All of ADEM's sites meet the requirements of 40 CFR 58, Appendices A, C, D and E , as appropriate unless listed below. A monitor's suitability for comparison with the NAAQS is documented in the Network Description and Site Assessment tables.

Sites with probe siting issues (40 CFR 58, Appendix E):

Chickasaw (AQS ID: 01-097-0003) the drip line of a small tree is within 10 meters of the probe. ADEM will work with the property owners to have the tree removed.

Helena (AQS ID:01-117-0004) the drip line of a small tree is within 10 meters of the probe. ADEM will work with the property owners to have the tree removed or trimmed.

FAIRHOPE

AQS ID: 01-003-0010

Fairhope High School, 1 Pirate Drive, Fairhope, Alabama 36532
Baldwin County

Latitude 30.497478

Longitude -87.880258

Name and distance of nearest road to inlet probe:

Nearest major road /AADT/Year/Distance/Direction:

Type of ground cover around site: Grass

Gale Rowe Lane/68m SE

Hwy 98/15380/2015/553m W

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 17m Direction from site: E

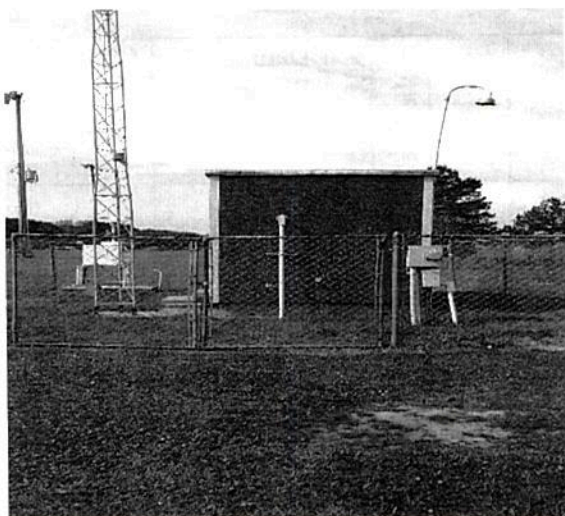
Water towers: 0

No sources of potential bias nearby. Distance between outer edge of high volume inlet and any other inlet: N/A

Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	N	S	Population Exposure/ Mobile-Daphne-Fairhope	UV	C	Y	03/01/2000	Active
PM2.5	N	S	Population Exposure/ Mobile-Daphne-Fairhope	L	3	Y	01/01/2000	Active



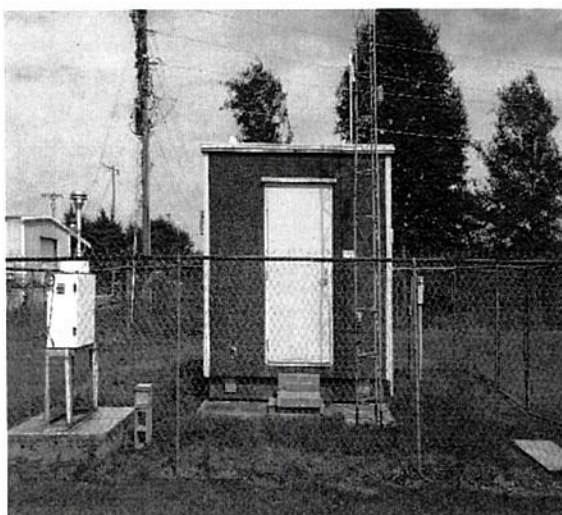
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.87m	1.67m	N/A	Y	14m	15m/E
PM2.5	N/A	2.3m	N/A	N/A	Y	27m	15m/E



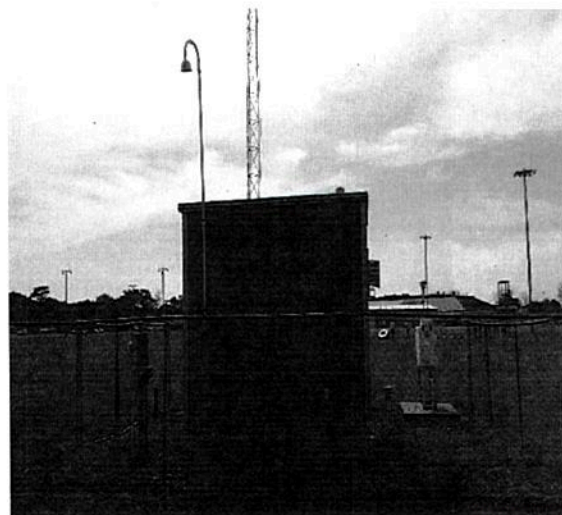
NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/17/2017

ASHLAND

AQS ID: 01-027-0001
371 Airport Road, Ashland, Alabama 36251
Clay County

Latitude 33.284928
Longitude -85.803608

Name and distance of nearest road to inlet probe:
Nearest major road/AADT/Year/Distance/Direction:
Type of ground cover around site: Grass

Airport Road 273m East
Highway 9/5890/2015/418m South

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 58m Direction from site: NW

Water towers: 0

No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

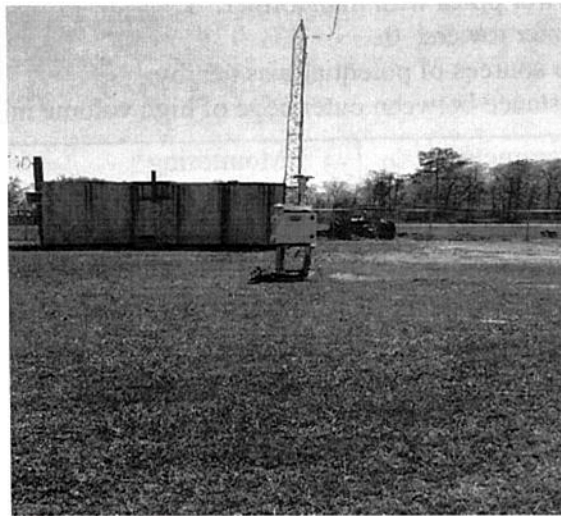
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
PM2.5	R	S	Regional Transport/ None	L	3	Y	01/01/1999	Active



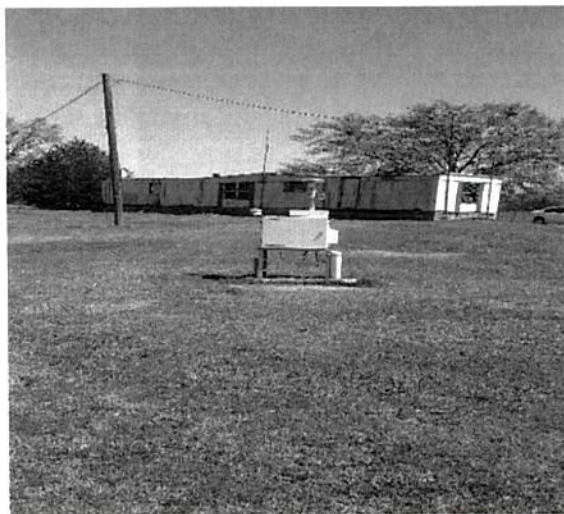
Pollutant	Probe Material/ Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
PM 2.5	N/A	2.1m	N/A	N/A	N/A	41m 36.5m 50m	26.5m/E 10m/W 30m/E



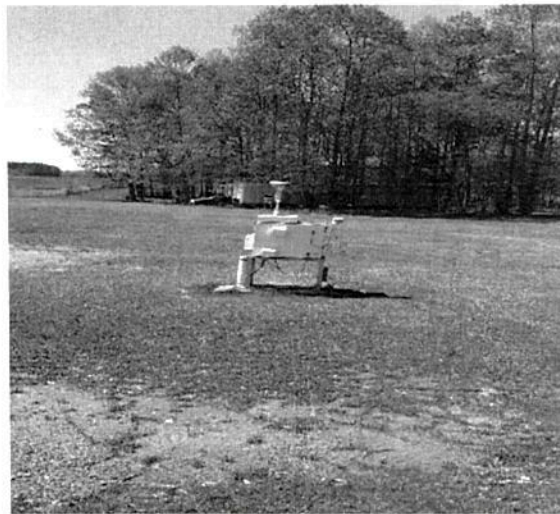
NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/10/2017

MUSCLE SHOALS

AQS ID: 01-033-1002

2nd Street and Wilson Dam Road, Muscle Shoals, Alabama 35661
Colbert County

Latitude 34.762619

Longitude -87.638097

Name and distance of nearest road to inlet probe:

N Wilson Dam Highway/300m E

Nearest major road /AADT/Year/Distance/Direction: N Wilson Dam Hwy/27300/2015/300m E

Type of ground cover around site: Grass

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer:

Distance: 57m Direction from site: North

Water towers: 0

No sources of potential bias nearby. Distance between outer edge of high volume inlet and any other inlet: N/A

Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	N	S	Population Exposure/ Florence-Muscle Shoals MSA	UV	C	Y	03/01/2003	Active
PM 2.5	N	S	Highest Concentration/ Florence-Muscle Shoals MSA	L	3	Y	01/01/1999	Active



Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	3.9m	1.2m	N/A	Y	30m	21m/W
PM 2.5	N/A	2.1m	N/A	N/A	Y	39m	21m/W



NORTH



SOUTH



EAST



WEST

Evaluation Date: 05/03/2017

CROSSVILLE

AQS ID: 01-049-1003

13112 Highway 68, Crossville, Alabama 35962

DeKalb County

Latitude 34.288567

Longitude -85.969858

Name and distance of nearest road to inlet probe: Sand Mountain Experimental Farm Rd/145m S

Nearest major road /AADT/Year/Distance/Direction:

Hwy 68/3780/2015/172m South

Type of ground cover around site: Grass

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 25m Direction from site: SW

Water towers: 0

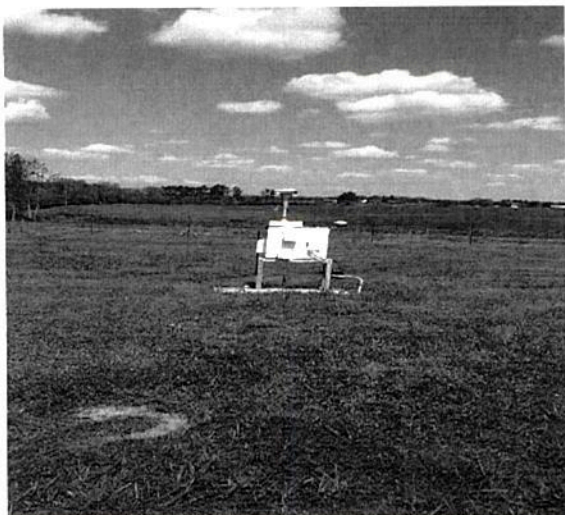
No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
PM2.5	N	S	General Background/None	L	3	Y	01/01/1999	Active



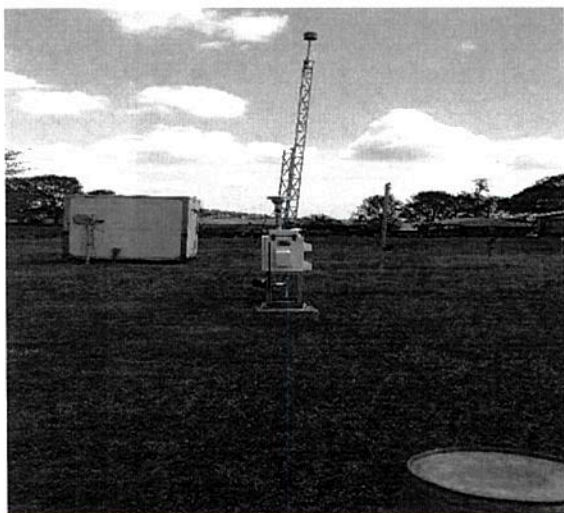
Pollutant	Probe Material/ Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
2.5	N/A	2.1m	N/A	N/A	Y	39.3m 22.8m	23.7m/W 12.8m/NE



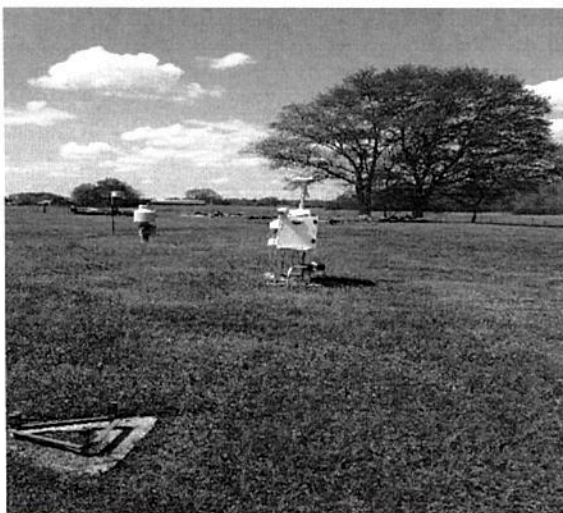
NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/12/2017

WETUMPKA

AQS ID: 01-051-0002
206 Queen Ann Road, Wetumpka, Alabama 36092
Elmore County

Latitude 32.538364
Longitude -86.232347

Name and distance of nearest road to inlet probe:
Nearest major road /AADT/Year/Distance/Direction:
Type of ground cover around site: Grass and gravel

Queen Ann Rd/52m SE
Highway 14/11090/2015/300m S

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

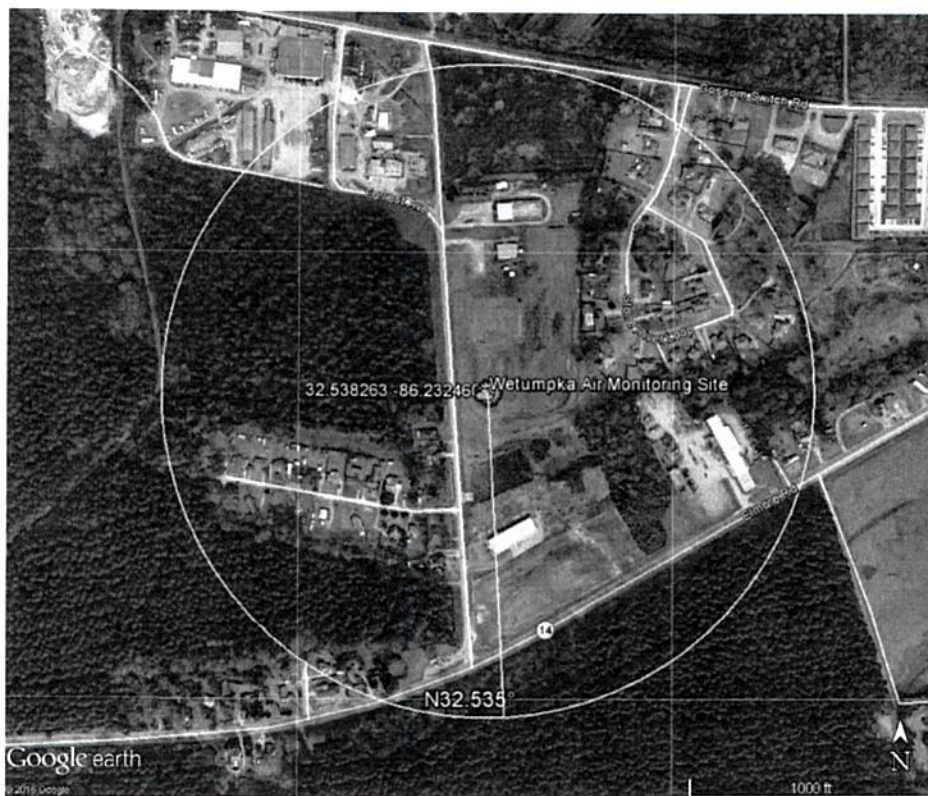
Distance: 38m Direction from site: Southeast

Water towers: 0

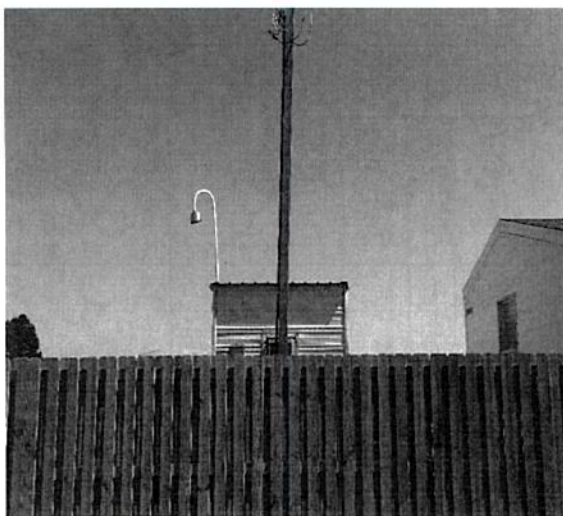
No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

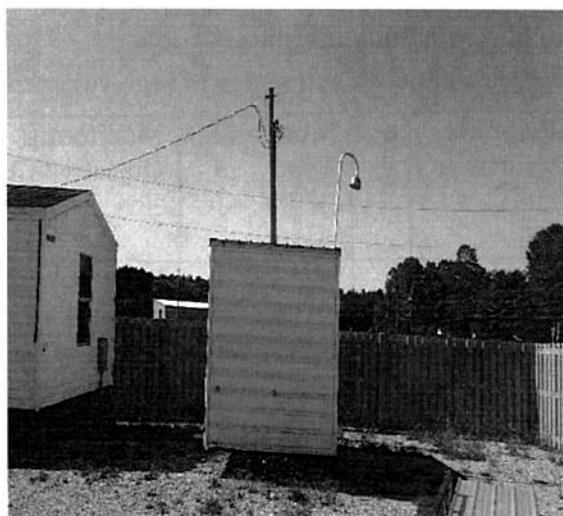
Parameter	Scale	Monitoring Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	N	SLAMS	Highest Concentration/ Montgomery MSA	UV	C	Y	03/31/2017	Active



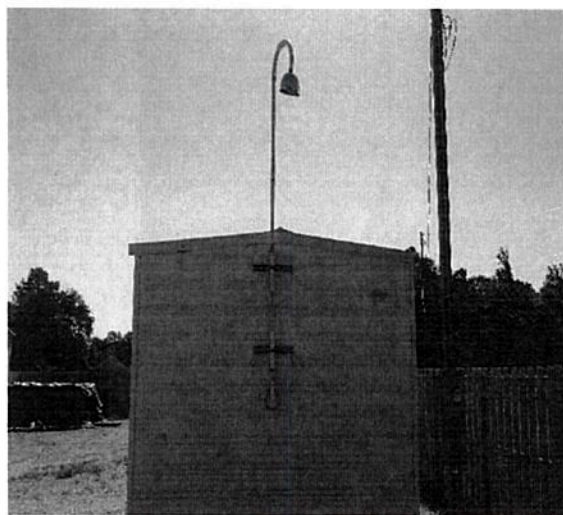
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.06m	1.14m	N/A	Y	68m	24m/W



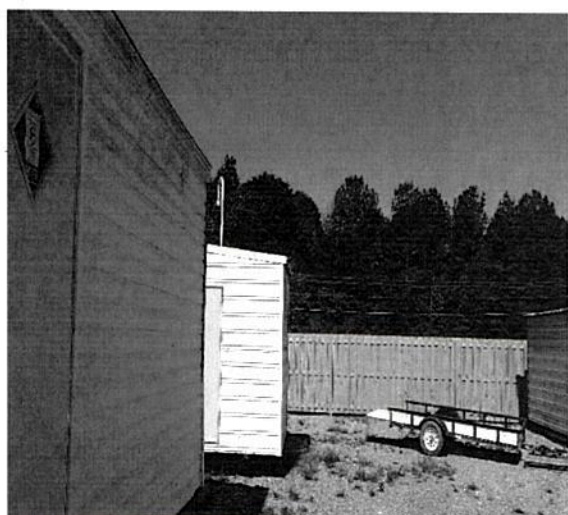
NORTH



SOUTH



EAST



WEST

Evaluation Date: 05/09/2017

GADSDEN COMMUNITY COLLEGE

AQS ID: 01-055-0010

1001 Wallace Drive, Gadsden, Alabama 35902

Etowah County

Latitude 33.991494

Longitude -85.992647

Name and distance of nearest road to inlet probe:

Nearest major road /AADT/Year/Distance/Direction:

Type of ground cover around site: Grass

S College Drive/75m SW

Interstate 759/27210/2015/540m W

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 32m Direction from site: E

Water towers: 0

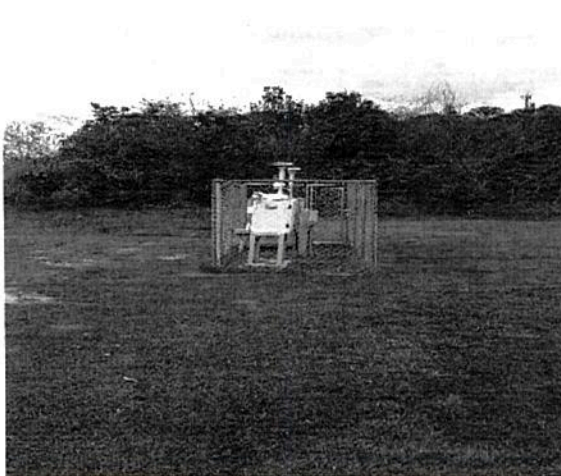
No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

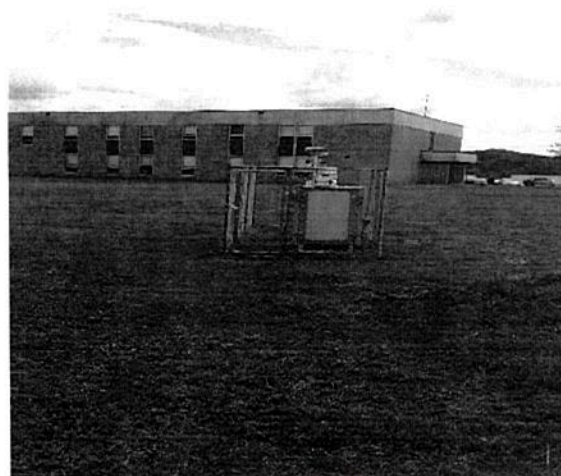
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
PM2.5	U	S	Population Exposure/ Gadsden MSA	L/ B	3/ C	Y	01/01/2000	Active



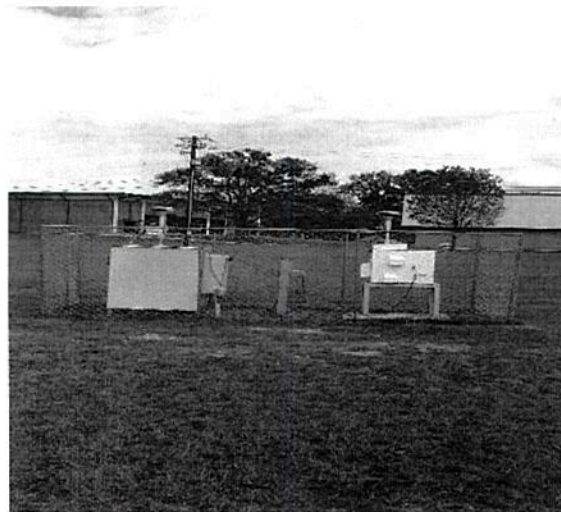
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
2.5/R&P	N/A	2.1m	N/A	2.0m	Y	12.8m	9.14m/N
2.5/BAM collocated 01/01/2015	N/A	2.1m	N/A		Y	13.7m	9.14m/N



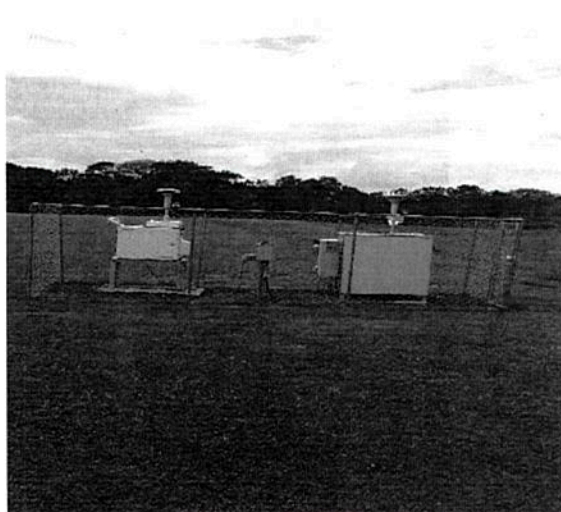
NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/12/2017

SOUTHSIDE

AQS ID: 01-055-0011

1450 Parker Anderson Lane, Southside, Alabama 35907

Etowah County

Latitude 33.9039

Longitude -86.0539

Name and distance of nearest road to inlet probe:

Parker Anderson Lane/85m SE

Nearest major road /AADT/Year/Distance/Direction: Gilbert Ferry Road/14080/2015/2.2km SW

Type of ground cover around site: Grass

Located within 1/4 mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 26m Direction from site: SE

Water towers: 0

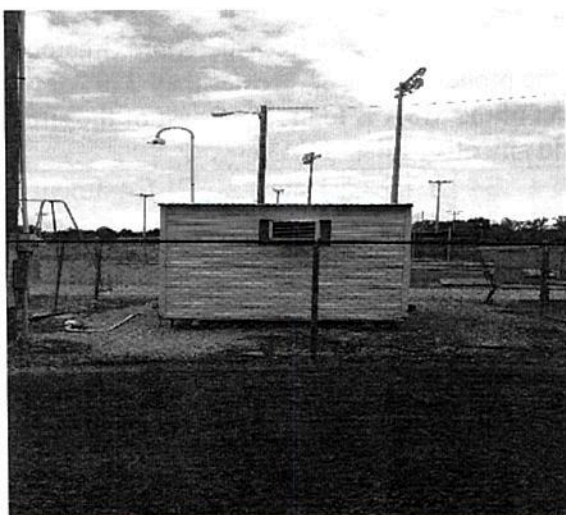
A line of trees to the southwest of the monitor form an obstruction. The trees are approximately 22 meters tall and the closest tree is 13 meters from the probe. However, greater than 270° of the monitoring path is unobstructed. The business district of the MSA is to the northeast of the site.

Distance between outer edge of high volume inlet and any other inlet: N/A

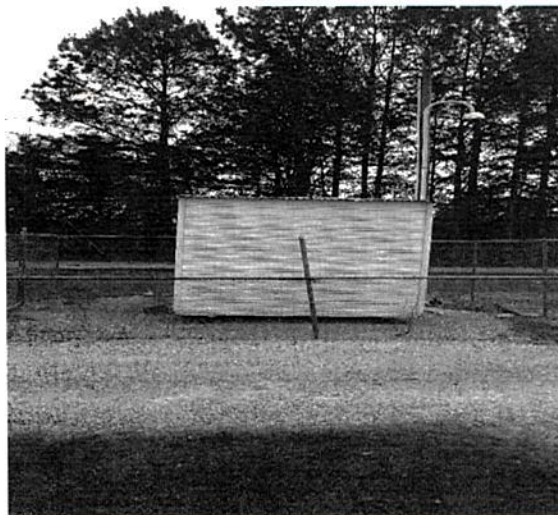
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	N	S	Highest Concentration/ Gadsden MSA	UV	C	Y	04/26/2002	Active



Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.4m	1.85 m	N/A	Y	13.7	22m/S



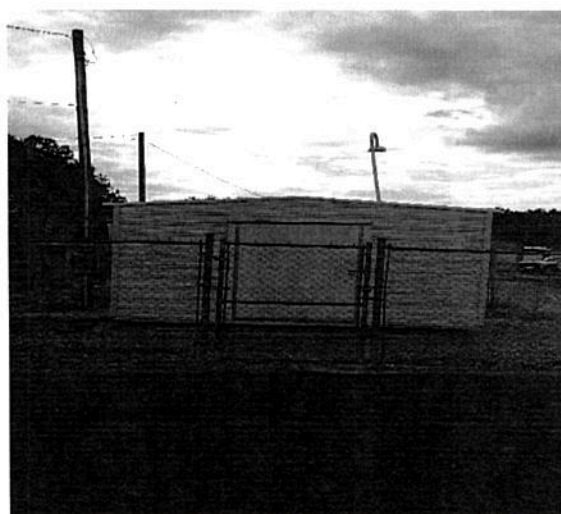
NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/12/2017

DOTHAN CIVIC CENTER

AQS ID: 01-069-0003

126 North St. Andrews Street, Dothan, Alabama 36303

Houston County

Latitude 31.224783

Longitude -85.390789

Name and distance of nearest road to inlet probe:

Nearest major road/AADT/Year/Distance/Direction:

Type of ground cover around site: Concrete roof tiles

N St Andrews St/45m W

E Main St/20150/2015/152m S

Located within 1/4 mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 0

Water towers: 0

No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

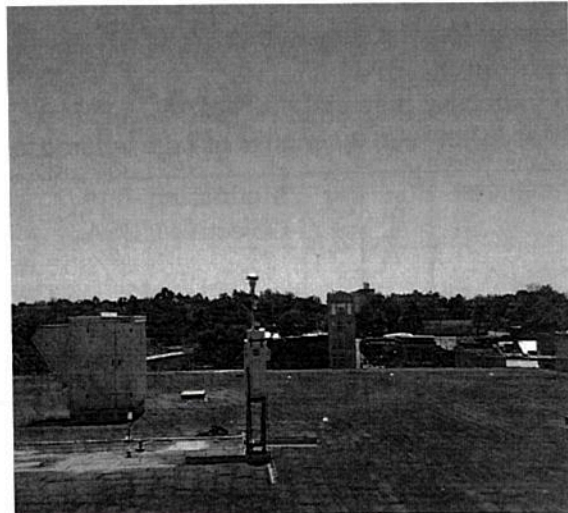
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
PM2.5	N	S	Highest Concentration/Dothan -Enterprise-Ozark	L	3	Y	01/07/2005	Active



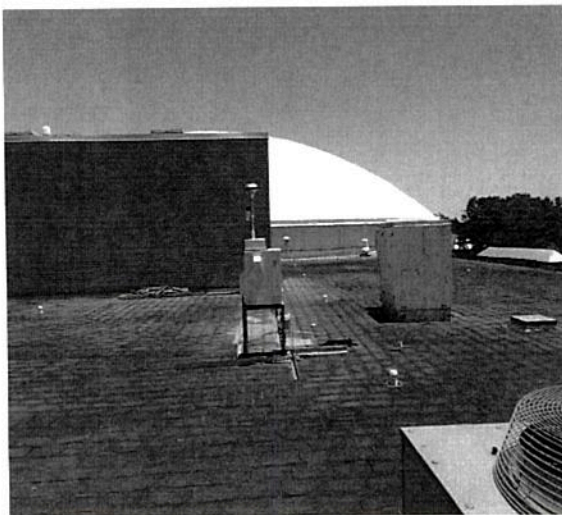
Pollutant	Probe Material/ Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
PM 2.5	N/A	13m	N/A	N/A	N/A	N/A	N/A



NORTH



SOUTH



EAST



WEST

Evaluation Date: 05/08/2017

DOTHAN

AQS ID: 01-069-0004
 161 Buford Drive, Dothan, Alabama 36301
 Houston County

Latitude 31.188930
 Longitude -85.423102

Name and distance of nearest road to inlet probe: Buford Dr/62m N or S Park Avenue/112m E
 Nearest major road /AADT/Year/Distance/Direction: Ross Clark Circle/33770/2015/1340m NE
 Type of ground cover around site: Grass and pavement

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 1

Distance: 190m Direction from site: N

Power poles with transformer: 0

Water towers: 0

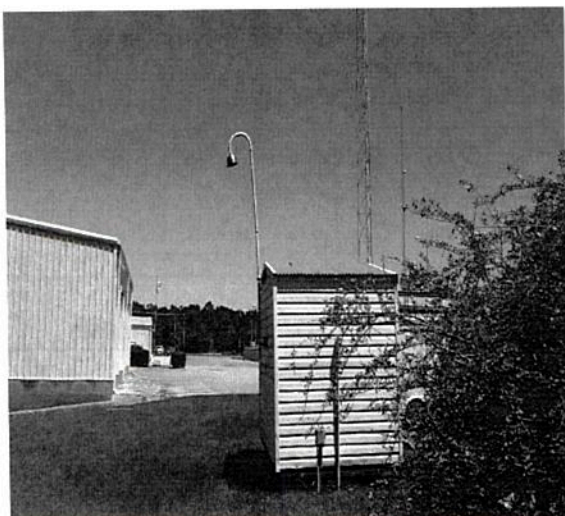
No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	N	S	Population Exposure/ Dothan-Enterprise-Ozark	UV	C	Y	03/14/2005	Active



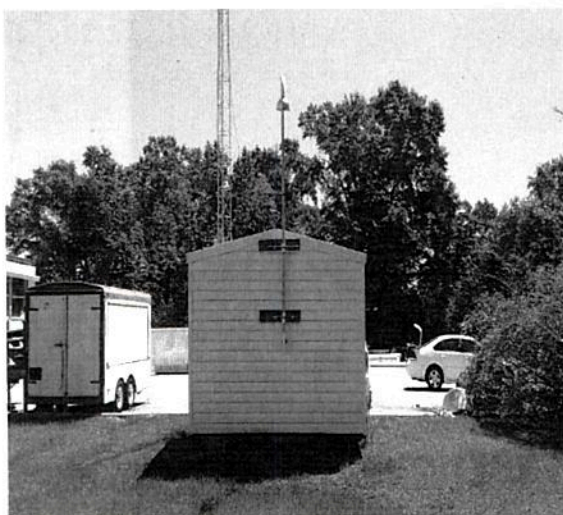
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.4m	1.5m	N/A	Y	36m	27m/W



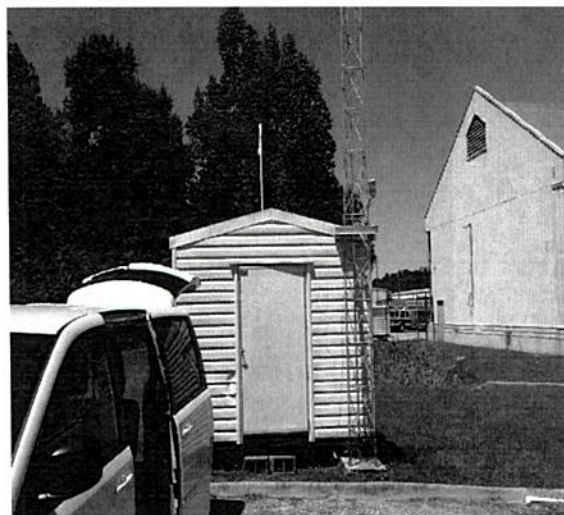
NORTH



SOUTH



EAST



WEST

Evaluation Date: 05/08/2017

CHICKASAW

AQS ID: 01-097-0003

750 Iroquois Street, Chickasaw, Alabama 36611

Mobile County

Latitude 30.770181

Longitude -88.087761

Name and distance of nearest road to inlet probe:

Nearest major road /AADT/Year/Distance/Direction:

Type of ground cover around site: Grass and Gravel

Iroquois Street/61m E

N Craft Hwy/12650/2015/205m NE

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 61m Direction from site: E

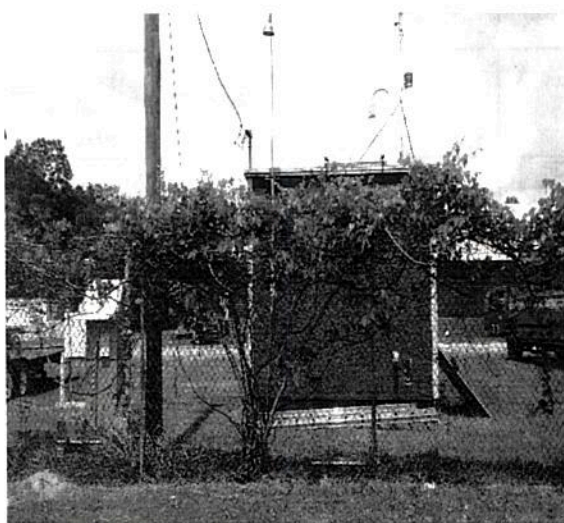
Water towers: 0

A tree is growing within 10 meters of the R&P PM2.5 monitor and will have to be de-limbed or removed. Distance between outer edge of high volume inlet and any other inlet: N/A

Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	N	S	Population Exposure/Mobile-Daphne-Fairhope	UV	C	Y	03/02/1982	Active
PM 2.5	R	S	Population Exposure/Mobile-Daphne-Fairhope	L	3	Y	07/19/2002	Active
PM 2.5	R	S	Other/Mobile-Daphne-Fairhope	B	C	Y	01/01/2011	Active
SO2	N	S	Population Exposure/Mobile-Daphne-Fairhope	UV	C	Y	01/01/2013	Active



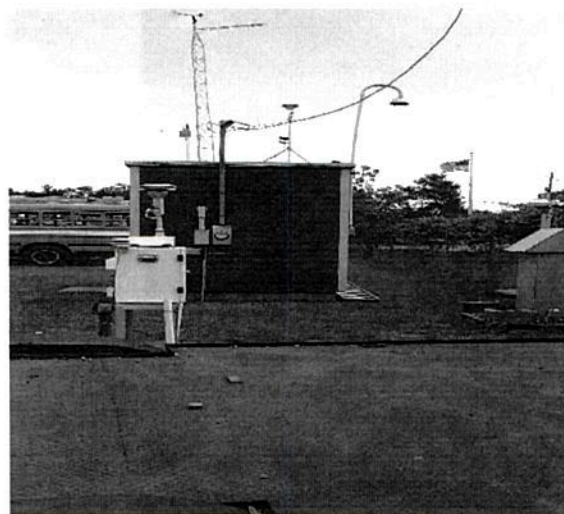
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.6m	1.67m	N/A	Y	11m	11m/W
PM 2.5/R&P	N/A	2.1m	N/A	N/A	Y	7m	11m/W
PM 2.5 /BAM	N/A	5m	2.1m	N/A	Y	14m	11m/W
SO2	Teflon/ Teflon	3.9m	1m	N/A	Y	13m	11m/W



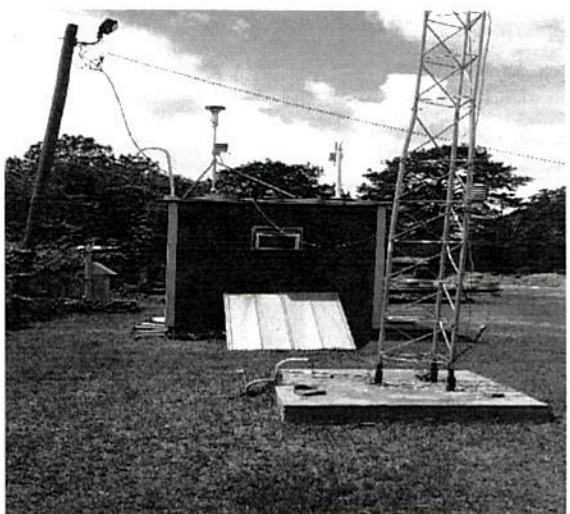
NORTH



SOUTH



EAST



WEST

BAY ROAD

AQS ID: 01-097-2005
 Bay Road, Mobile, Alabama 36582
 Mobile County

Latitude 30.4747
 Longitude -88.1411

Name and distance of nearest road to inlet probe: Bay Road/205m S
 Nearest major road /AADT/Year/Distance/Direction: Dauphin Island Pkwy/6970/2015/2.6km E
 Type of ground cover around site: Grass and Gravel

Located within 1/4 mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 41m Direction from site: E

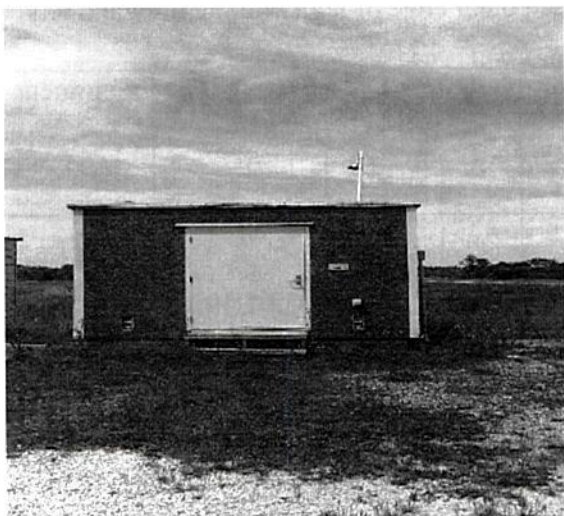
Water towers: 0

No sources of potential bias nearby. Distance between outer edge of high volume inlet and any other inlet: N/A

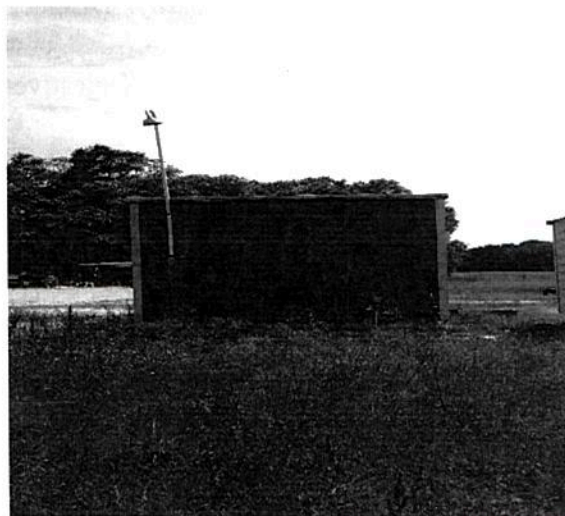
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	U	S	Population Exposure and Highest Concentration/ Mobile-Daphne-Fairhope	UV	C	Y	03/01/1999	Active



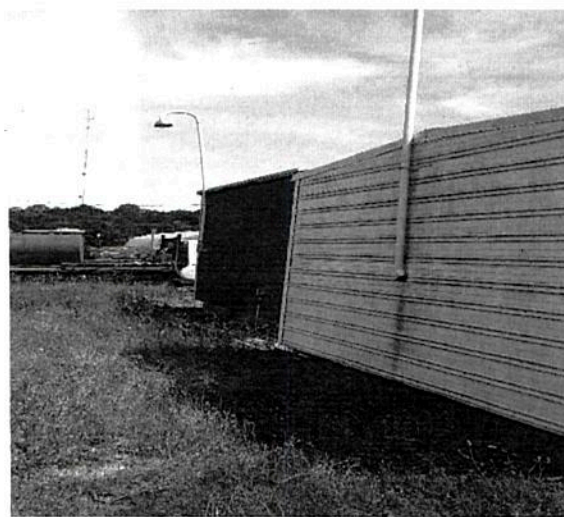
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.9m	1.67m	N/A	Y	36m	22m/S



NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/17/2017

MOMS

AQS ID: 01-101-1002

1350 Coliseum Boulevard, Montgomery, Alabama 36109
Montgomery County

Latitude 32.412811

Longitude -86.263394

Name and distance of nearest road to inlet probe:

Nearest major road /AADT/Year/Distance/Direction:

Newell Parkway/135m E

Northern Blvd/25720/2015/1.06km N

Type of ground cover around site: Grass and Gravel

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 61m Direction from site: E

Water towers: 0

No sources of potential bias nearby. Distance between outer edge of high volume inlet and any other inlet: >2m

Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	N	S	Population Exposure/ Montgomery MSA	UV	C	Y	06/02/1993	Active
PM 2.5	N	S	Population Exposure/ Montgomery MSA	L/ L/ B	3/ 3/ C	Y	01/16/2009	Active
PM 10	N	S	Population Exposure/ Montgomery MSA	H/ H	6/ 6	Y	09/16/1993 redesignated SPM 01/01/2004	Active



Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	3.6m	1m	N/A	Y	61m	14m/W
PM 2.5/R&P	N/A	3.3m	N/A	1.4m	Y	61m	14m/W
PM 2.5/R&P collocated 01/16/2009	N/A	3.3m	N/A	1.4m	Y	61m	14m/W
PM 2.5 /BAM	N/A	4.8m	2.2m	N/A	Y	61m	14m/W
PM 10	N/A	2.4m	N/A	5m	Y	61m	14m/W
PM 10 collocated 01/01/2013	N/A	2.4m	N/A	5m	Y	61m	14m/W



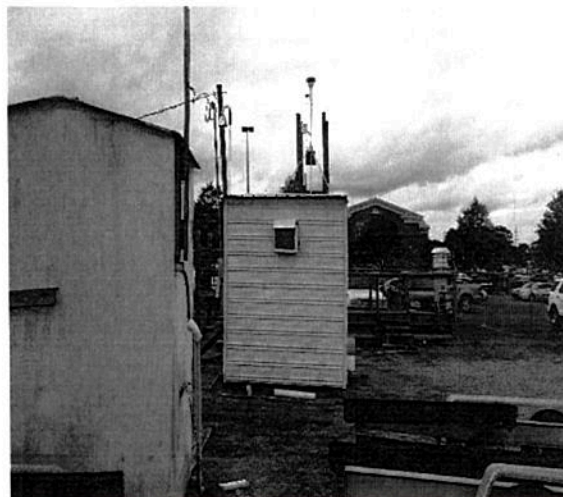
NORTH



SOUTH



EAST



WEST

DECATUR

AQS ID: 01-103-0011
 4104 Highway 31, Decatur, Alabama 35603
 Morgan County

Latitude 34.530717
 Longitude -86.967536

Name and distance of nearest road to inlet probe:
 Nearest major road /AADT/Year/Distance/Direction:
 Type of ground cover around site: Grass and Pavement

Hwy 31/515m W
 Hwy 31/21100/2015/515m W

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 36m Direction from site: South

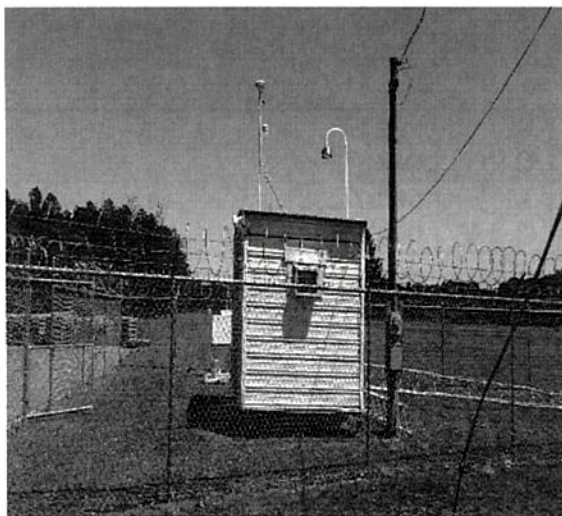
Water towers: 0

No sources of potential bias nearby. Distance between outer edge of high volume inlet and any other inlet: N/A

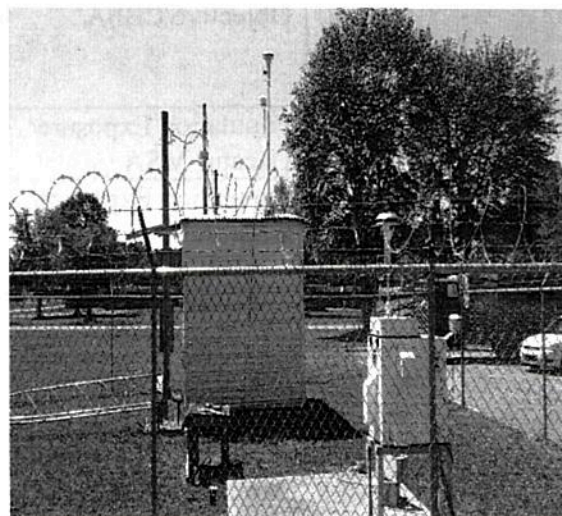
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	U	S	Population Exposure/ Decatur MSA	UV	C	Y	04/01/2000	Active
PM 2.5	M	S	Population Exposure/ Decatur MSA	L/ B	3/ C	Y	08/07/2001/ 01/01/2015	Active



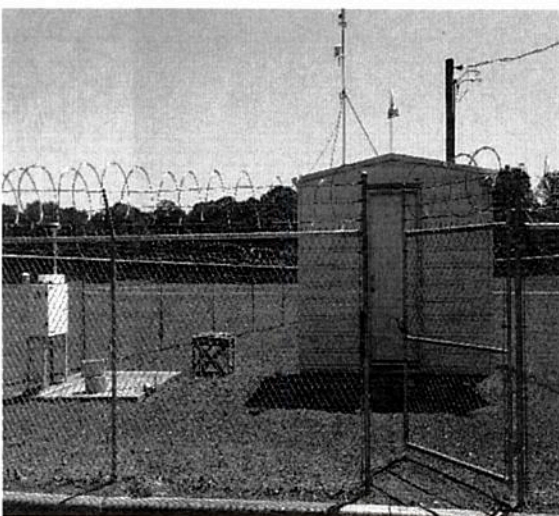
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4m	1m	N/A	Y	22m	10m/SW
PM 2.5/ BAM	N/A	5.4m	2.4m	N/A	Y	22m	10m/SW
PM 2.5/R&P	N/A	2.1m	N/A	N/A	Y	27m	10m/SW



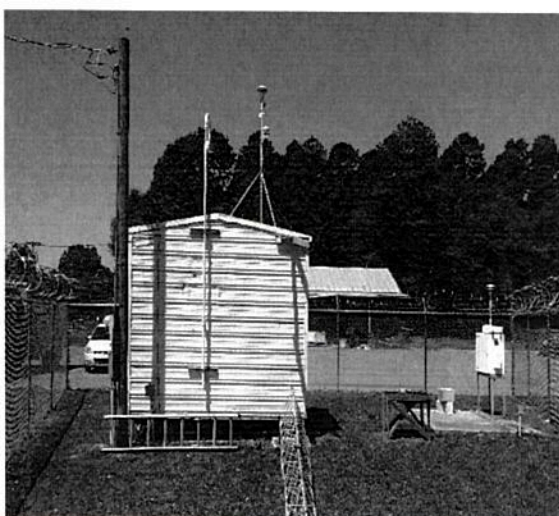
NORTH



SOUTH



EAST



WEST

Evaluation Date: 05/03/2017

TROY

AQS ID: 01-109-0003
S. Three Notch Rd., Troy, Alabama 36081
Pike County

Latitude 31.790560
Longitude -85.979170

Name and distance of nearest road to inlet probe:
Nearest major road /AADT/Year/Distance/Direction:
Type of ground cover around site: Grass

S 3 Notch St/16m W
Highway 231/31740/2015/230m NE

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer:

Distance: 41m Direction from site: North

Water towers: 0

No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

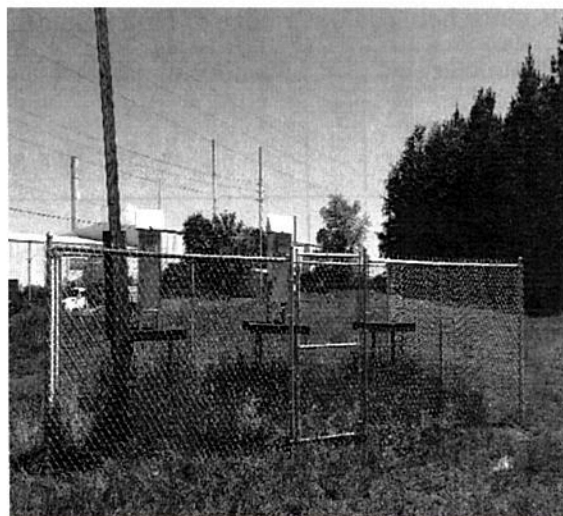
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Lead	N	S	Highest Concentration/Troy μ SA	S	6	Y	01/01/2009	Active



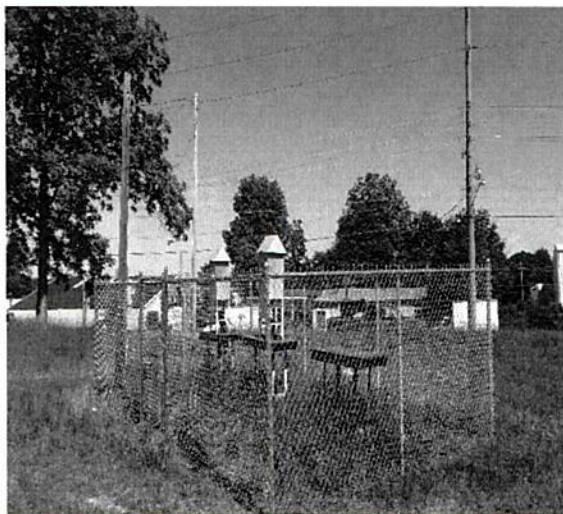
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Lead	N/A	2.1m	N/A	3.56m	Y	11m	18m/NE
Lead collocated 01/01/2009	N/A	2.1m	N/A	3.56m	Y	13m	18m/NE



NORTH



SOUTH



EAST



WEST

Evaluation Date: 05/08/2017

LADONIA

AQS ID: 01-113-0002
9 Woodland Drive, Ladonia, Alabama 36869
Russell County

Latitude 32.46735
Longitude -85.083447

Name and distance of nearest road to inlet probe:
Nearest major road /AADT/Year/Distance/Direction:
Type of ground cover around site: Grass and pavement

Woodland Drive/100m W
Highway 80/22540/2015/206m N

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

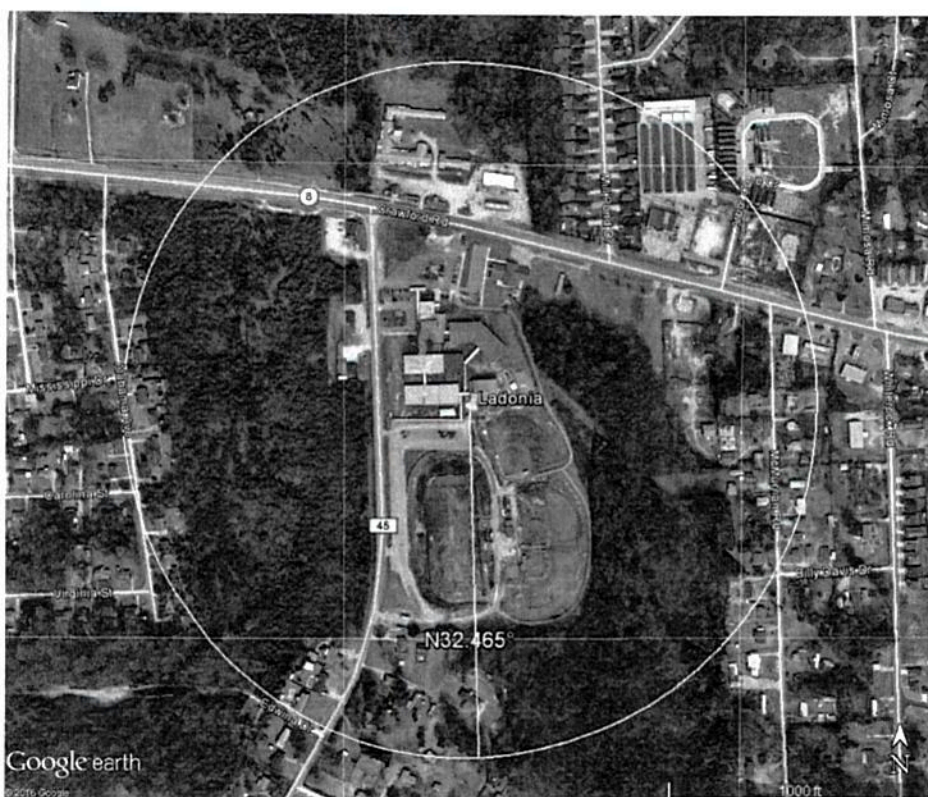
Distance: 25m Direction from site: West

Water towers: 0

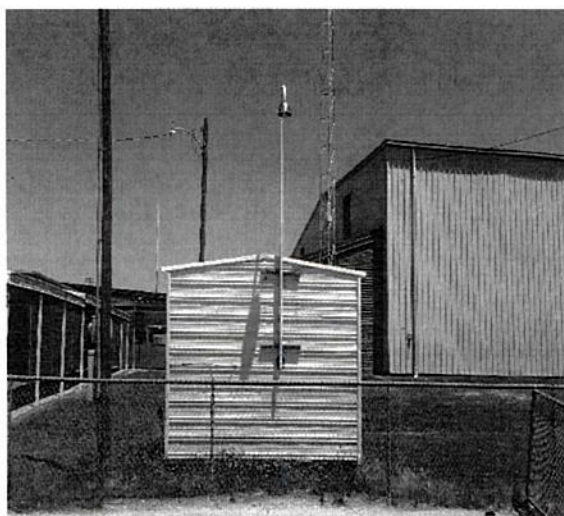
No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

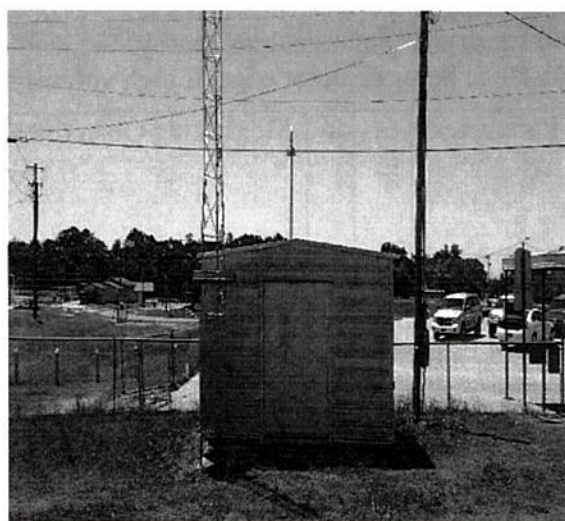
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	U	S	Population Exposure/ Columbus-Auburn-Opelika	UV	C	Y	03/01/2003	Active



Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.23m	1.6m	N/A	Y	115m	30m/E



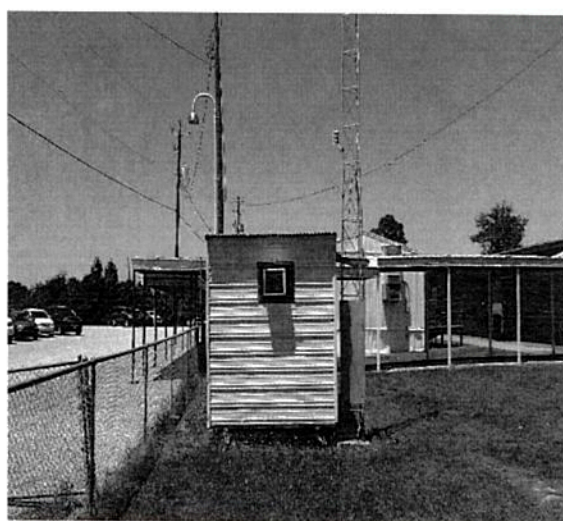
NORTH



SOUTH



EAST



WEST

Evaluation Date: 05/09/2017

PHENIX CITY - SOUTH GIRARD SCHOOL

AQS ID: 01-113-0003

510 6th Place South, Phenix City, Alabama 36869

Russell County

Latitude 32.437028

Longitude -84.999653

Name and distance of nearest road to inlet probe:

Nearest major road /AADT/Year/Distance/Direction:

Type of ground cover around site: Grass

5th Avenue S/123m SE

Hwy 280/31540/2015/1.71km N

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 22m Direction from site: Southeast

Water towers: 0

No sources of potential bias nearby. Distance between outer edge of high volume inlet and any other inlet: N/A

Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
PM 2.5	N	S	Highest Concentration/ Columbus-Auburn- Opelika	L/ L/	3/ 3/	Y		Active



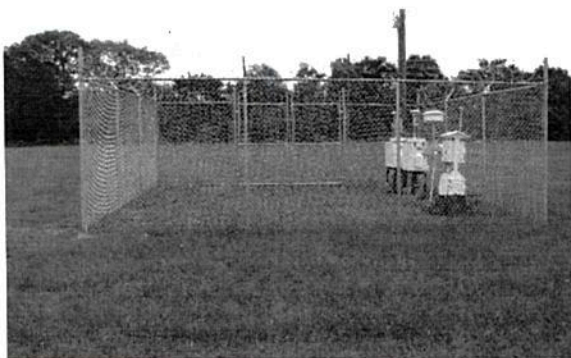
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of site fence to nearest tree dripline	Height of nearest tree/ Direction from site to tree
						41m	14m/SE



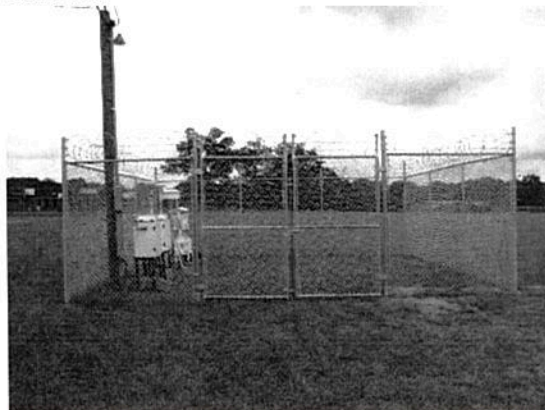
NORTH



SOUTH



EAST



WEST

Evaluation Date: 05/09/2017

HELENA

AQS ID: 01-117-0004
 Helena, Bearden Farm, Alabama 35080
 Shelby County

Latitude 33.3169
 Longitude -86.825

Name and distance of nearest road to inlet probe:
 Nearest major road /AADT/Year/Distance/Direction:
 Type of ground cover around site: Grass

Limestone Drive/315m S
 Helena Road/12020/2015/386m E

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 55m Direction from site: SE

Water towers: 0

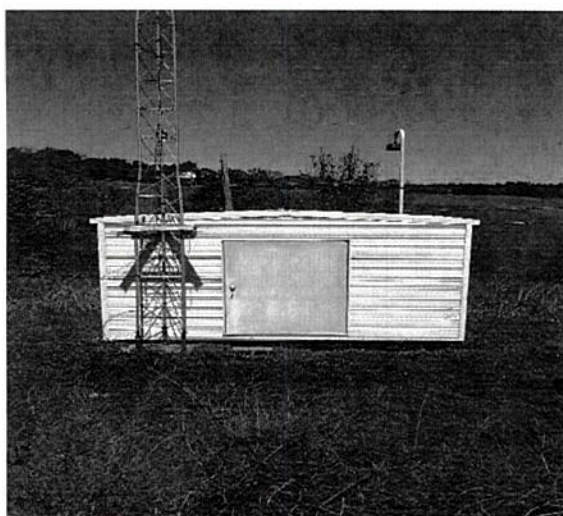
The dripline of a tree is 7.3 meters from the east side of the probe inlet. This tree will have to be de-limbed or removed to satisfy the requirements of 40 CFR Part 58 Appendix E.

Distance between outer edge of high volume inlet and any other inlet: N/A

Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	U	S	Population Exposure/ Birmingham-Hoover- Talladega	U V	C	Y	01/01/1983	Active



Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.5m	1.6 m	N/A	Y	7.3m	11.8m/E



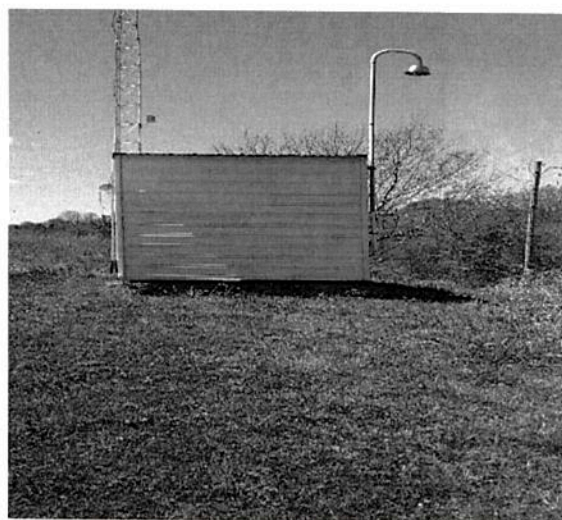
NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/04/2017

LHOIST, MONTEVALLO PLANT

AQS ID: 01-117-9001
7444 Highway 25, Calera, Alabama 35040
Shelby County

Latitude 33.0928
Longitude -86.8072

Name and distance of nearest road to inlet probe:
Nearest major road /AADT/Year/Distance/Direction:
Type of ground cover around site: Stone and Grass

Plant Exit Road/26m S
Highway 25/8090/2015/26m N

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 1

Distance: 61m Direction from site: S

Railroad tracks: 1

Distance: 40m Direction from site: E

Power poles with transformer: 1

Distance: 23m Direction from site: NE

Water towers: 0

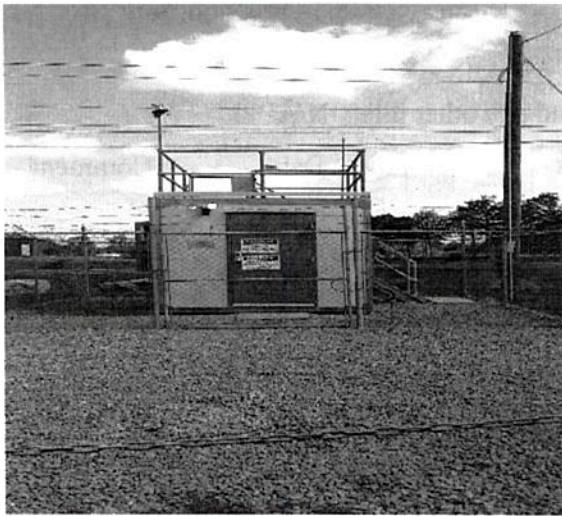
A limestone quarry and kiln are located nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

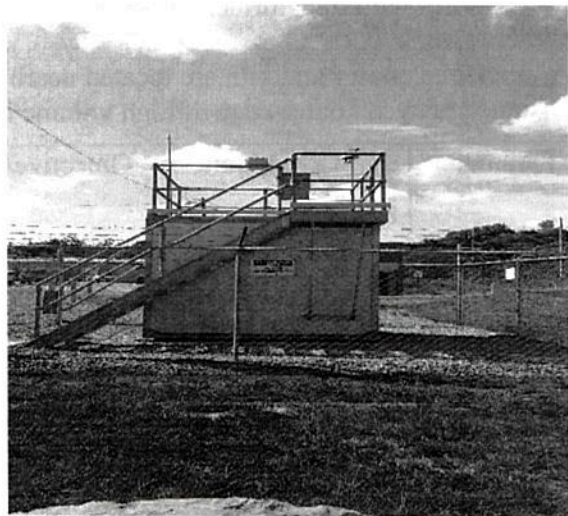
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
SO2	M	S	Highest Concentration/ Birmingham-Hoover- Talladega	UV	C	Y	01/01/2017	Active



Pollutant/ Monitor Name	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
SO2/	Teflon/ Teflon	4.47m	1.88 m	N/A	Y	18m	6m/SW



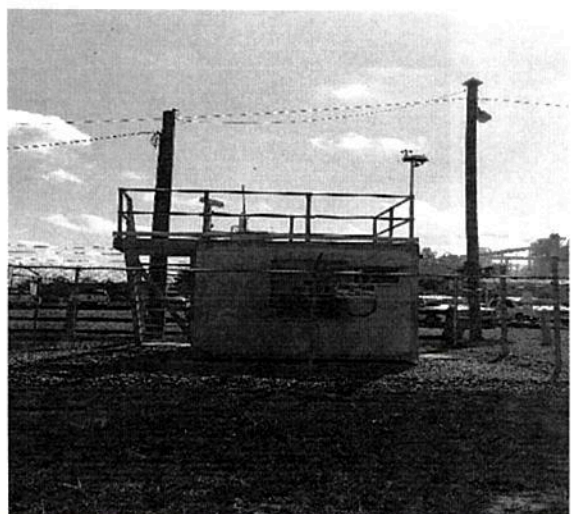
NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/18/2017

WARD

AQS ID: 01-119-0003
 NNE of Ward Post Office, Ward, Alabama 36922
 Sumter County

Latitude 32.362606
 Longitude -88.277992

Name and distance of nearest road to inlet probe:
 Nearest major road /AADT/Year/Distance/Direction:
 Type of ground cover around site: Grass

Ward Road 10/40m SW
 Highway 17/1620/2015/8.2km E

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

Distance: 6m Direction from site: NE

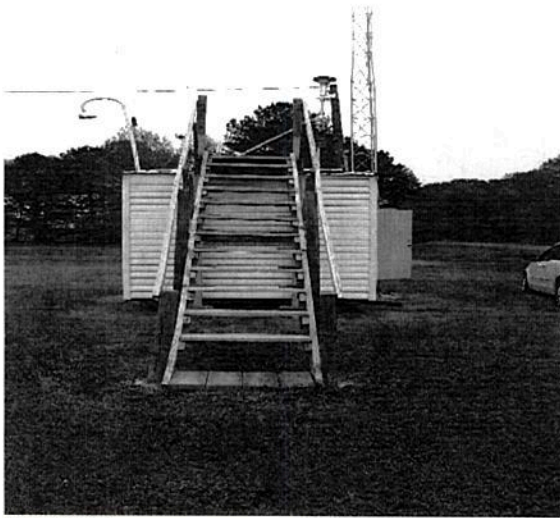
Water towers: 0

A newly tilled garden approximately 87m x 31m is located 19m north of the shelter. Distance between outer edge of high volume inlet and any other inlet: N/A

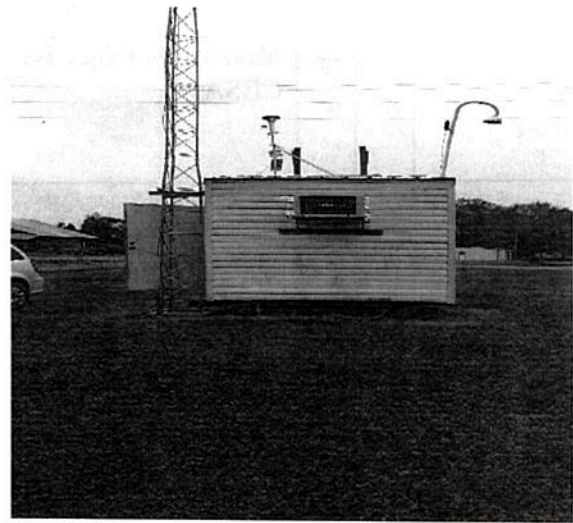
Parameter	Scale	Type	Monitoring Objective/ CBSA	Method	Schedule	NAAQS	Date Began	Comment
Ozone	R	S	General Background/ Meridian, MS	UV	C	Y	03/01/2013	Active
PM 2.5	N	S	Other/ Meridian, MS	B	C	Y	01/01/2015	Active



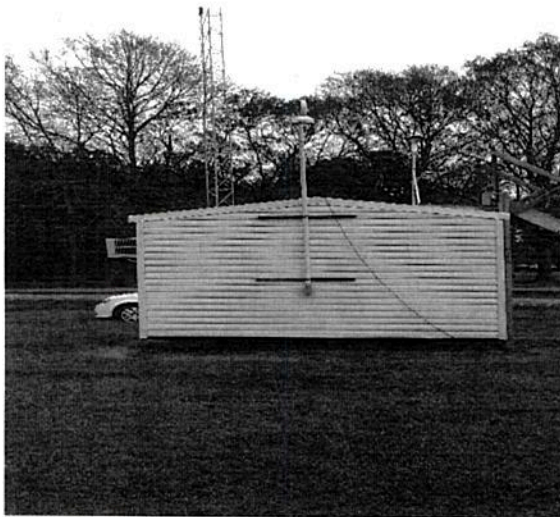
Pollutant	Probe Material /Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
Ozone	Teflon/ Stainless Steel	4.7m	1.3m	N/A	Y	12.8m	22m/W
PM 2.5	N/A	4.7m	1.3m		Y	13.8m	22m/W



NORTH



SOUTH



EAST



WEST

Evaluation Date: 03/30/2017

CHILDERSBURG

AQS ID: 01-121-0002
300 1st Street Southeast, Childersburg, Alabama 35044
Talladega County

Latitude 33.27947
Longitude -86.349438

Name and distance of nearest road to inlet probe:
Nearest major road /AADT/Year/Distance/Direction:
Type of ground cover around site: Grass

Graves Avenue 15m East
1st St SE/6160/2015/88m North

Located within ¼ mile of the site

Electrical substations/high voltage power lines: 0

Railroad tracks: 0

Power poles with transformer: 1

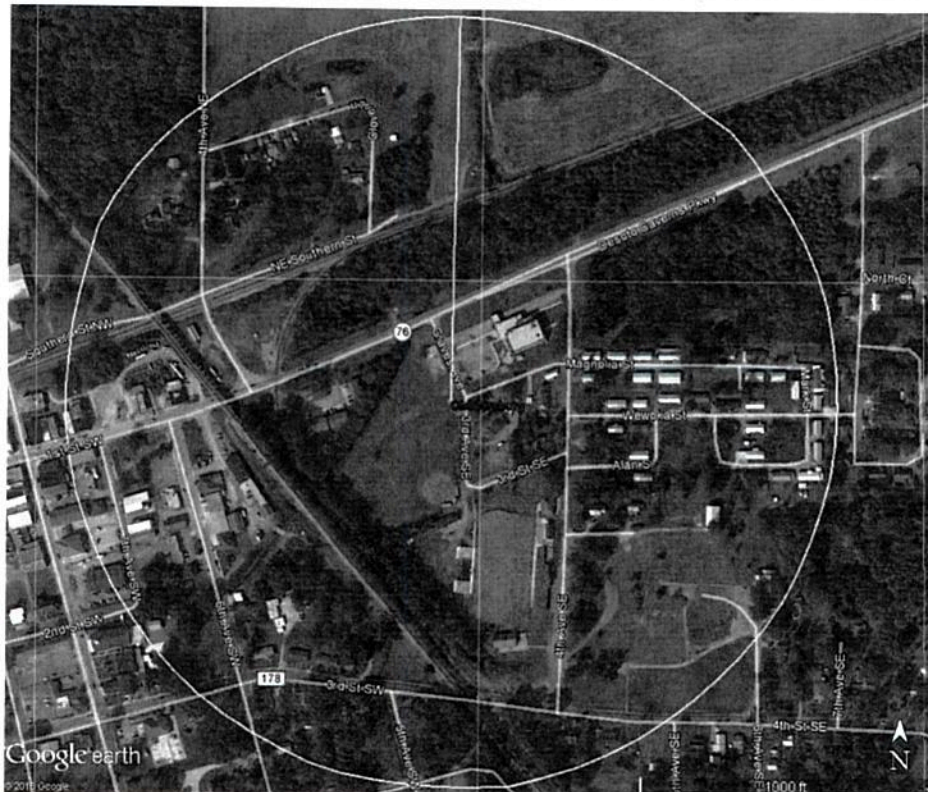
Distance: 1m Direction from site: W

Water towers: 0

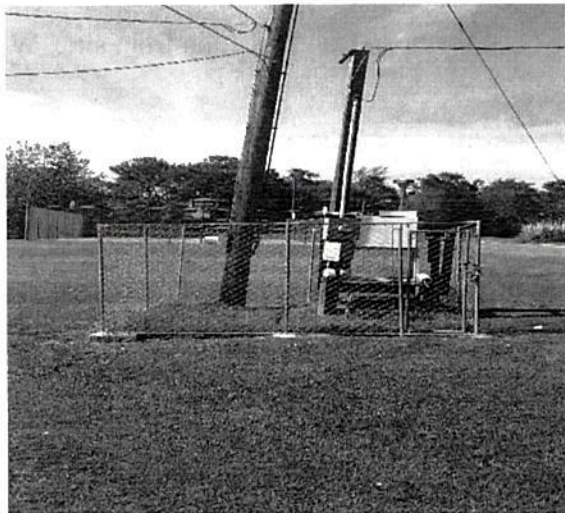
No sources of potential bias nearby.

Distance between outer edge of high volume inlet and any other inlet: N/A

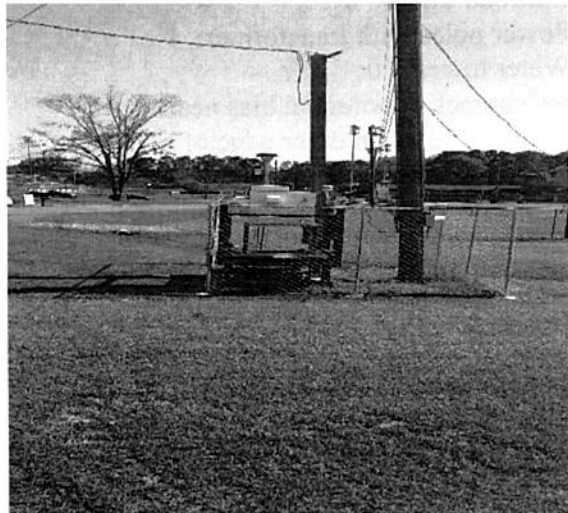
Parameter	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Date Began	Comment
PM 2.5	N	S	Highest Concentration / None	L	3	Y	01/01/1999	Active



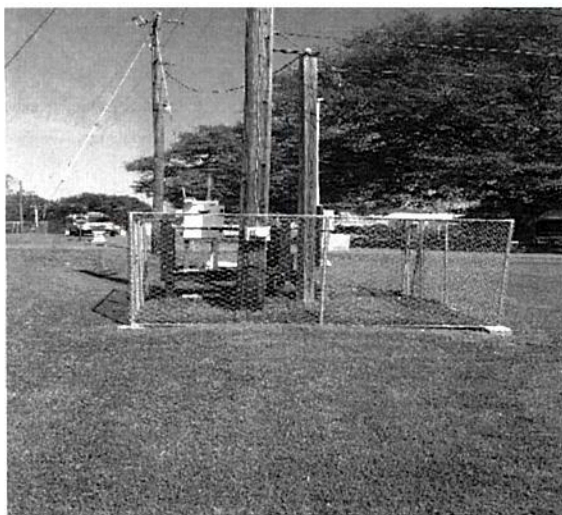
Pollutant	Probe Material/ Rain Shield Material	Probe Inlet Height from ground	Distance of outer edge of probe inlet from vertical or horizontal supporting structure	Distance between entire inlet probes of collocated samplers	Outer edge of probe inlet >1m from other probe inlets (Y or N)	Distance of inlet probe to nearest tree dripline	Height of nearest tree/ Direction from probe to tree
PM 2.5	N/A	2.87m	N/A	N/A	N/A	14.6m	26.5m/W



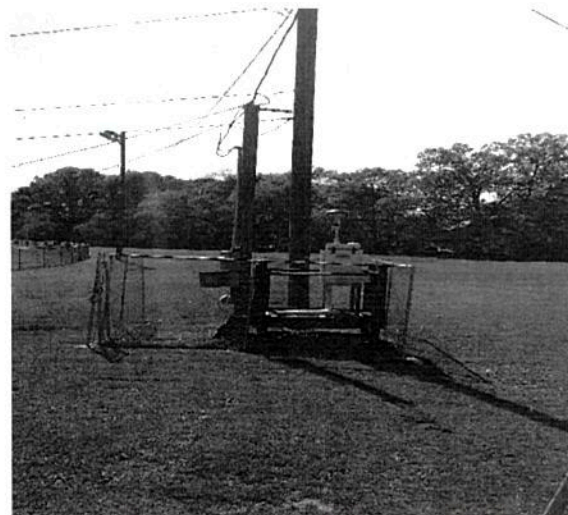
NORTH



SOUTH



EAST



WEST

Evaluation Date: 04/10/2017